

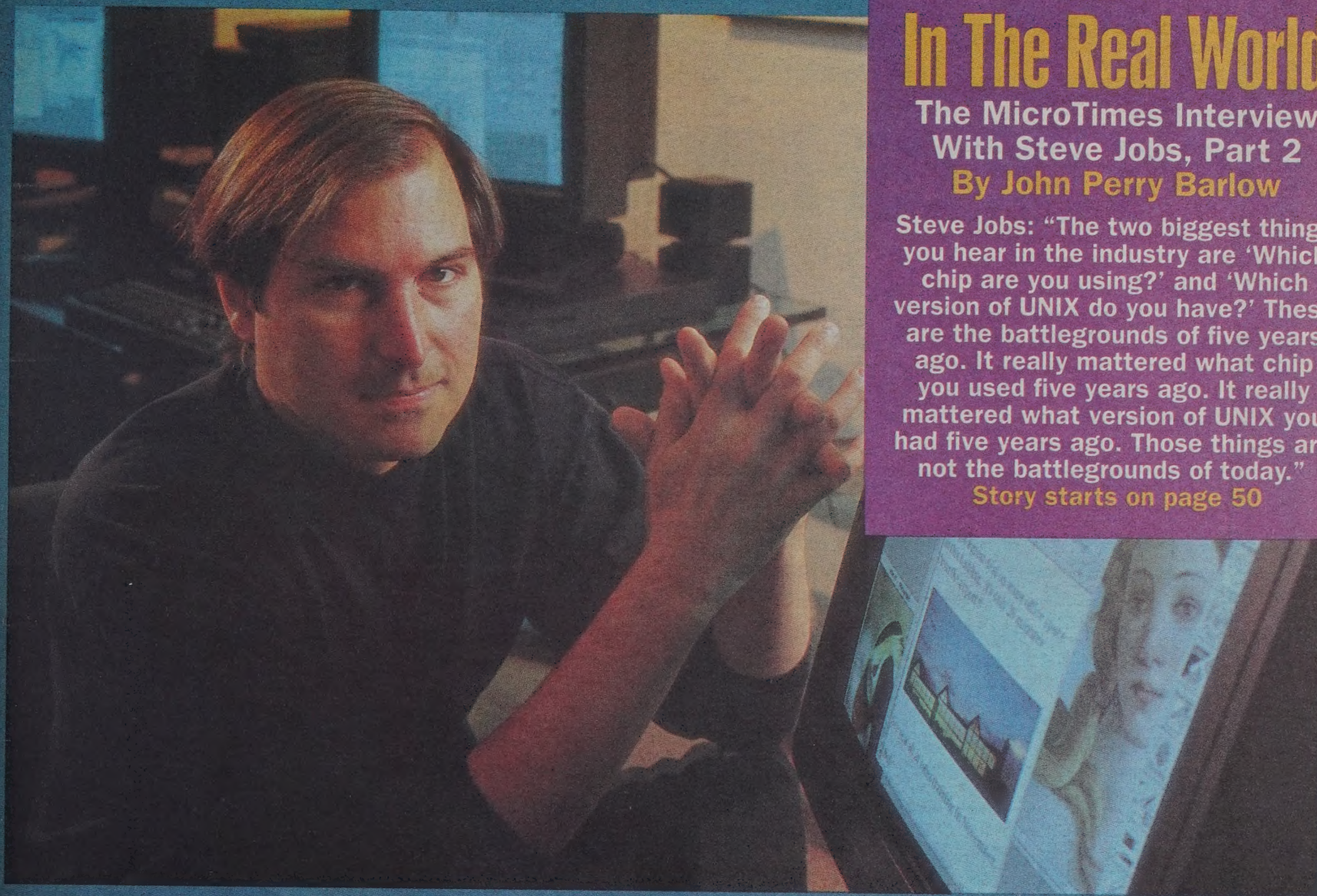
Stranger Than Truth:
Dvorak On Microsoft
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Northern California's Computer Magazine

Feb. 17, 1992 • 92

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In The Real World

The MicroTimes Interview
With Steve Jobs, Part 2

By John Perry Barlow

Steve Jobs: "The two biggest things you hear in the industry are 'Which chip are you using?' and 'Which version of UNIX do you have?' These are the battlegrounds of five years ago. It really mattered what chip you used five years ago. It really mattered what version of UNIX you had five years ago. Those things are not the battlegrounds of today."

Story starts on page 50

IBM's Portable PS/2 Does It Right

"For years the portable market has eluded Big Blue. Mistake after mistake has preceded the introduction of an acceptable portable unit, but at last IBM has come across with a solid entry."

Story starts on page 26

Iris Replaces Mainframe

Stephan G. Regulinski, director of corporate R&D, United Airlines: "Implementing the Power Iris solution was not only cheaper than mainframe capacity, it also effectively gave users twice as many resources as they had access to on the mainframe."

Story starts on page 30

QuickTime Takes Off

"Digital video running on a standard Mac changes the rules on what's possible."

For the price of a couple of business lunches, Kid Pix Companion might eat the lunches of several low/mid-range presentation packages with more elevated tabs."

Story starts on page 205

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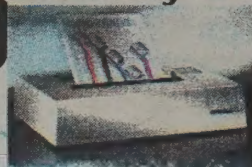
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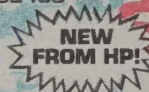
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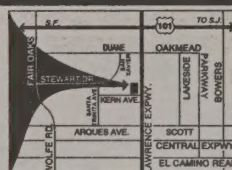
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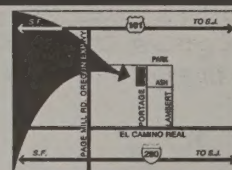
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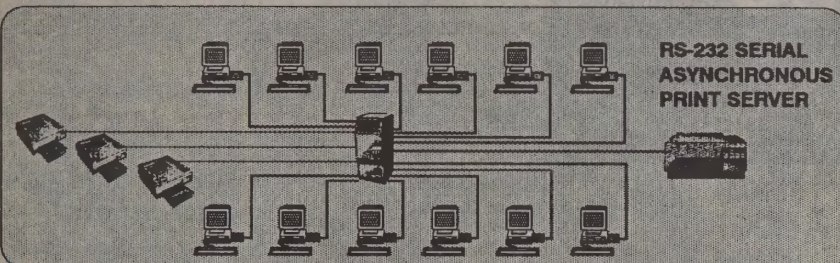
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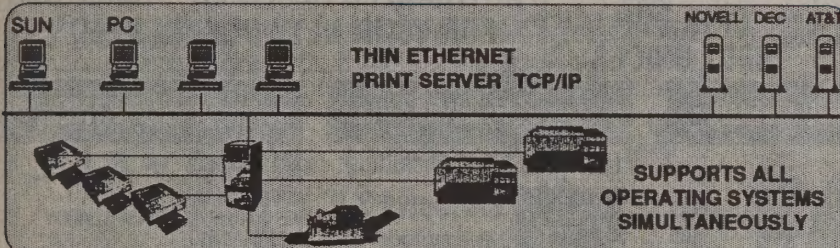


"In terms of fast setup, direct status checking, low maintenance, and nearly effortless troubleshooting, the \$995 Data Manager XL-100 with 512K buffer, eight serial ports with RJ-11 connections, two DB-25 parallel ports, and one Ethernet port is a PC resource person's dream machine."



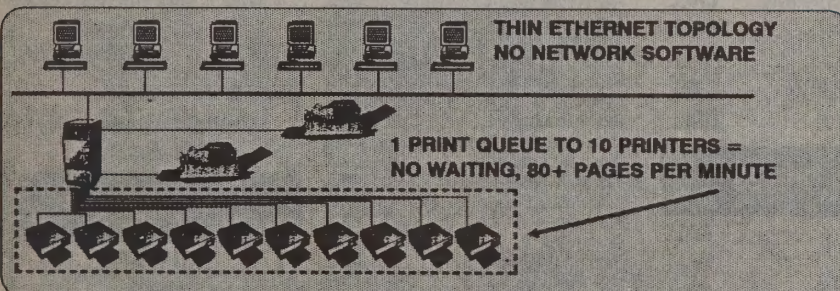
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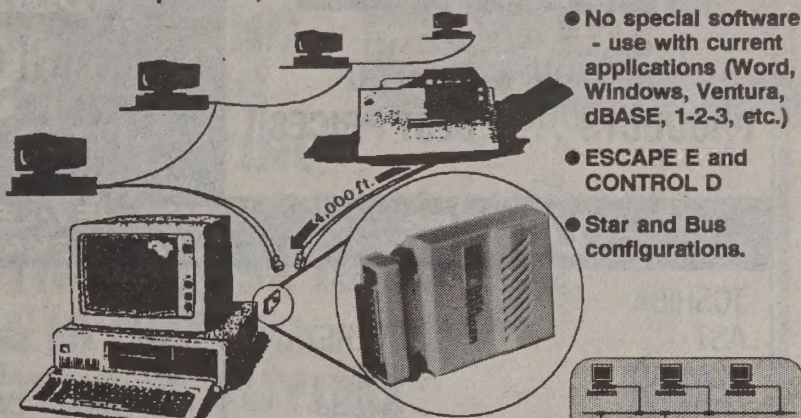
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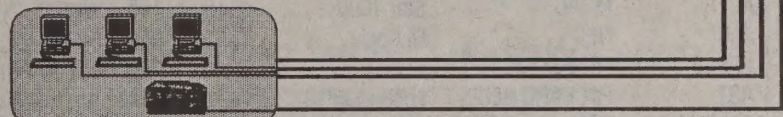
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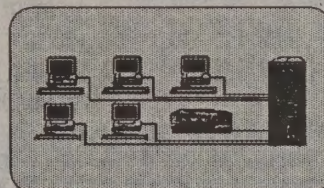
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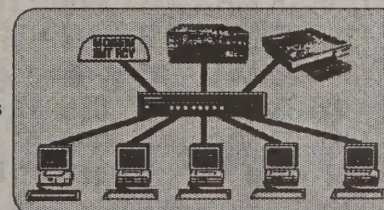


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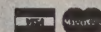
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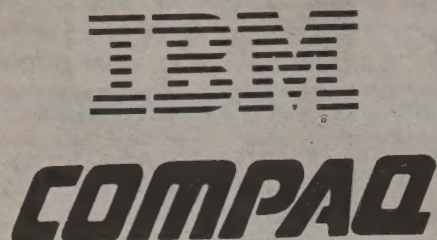
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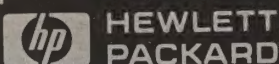
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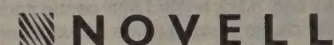
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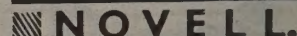


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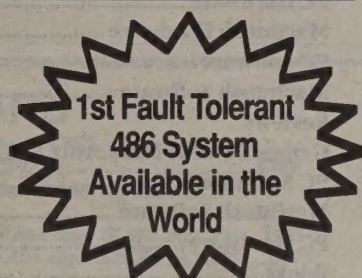
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Jobs doesn't think Silicon Graphics machines are used much in mainstream business applications, but United Airlines apparently disagrees, having recently gone for Power Iris to solve its crew scheduling problems. Story starts on page 30.

—ME

COVER STORY:

NeXT In The Real World 50

By John Perry Barlow

Cover photo: Terrence McCarthy

In Part II of this interview, Steve Jobs gives his views on changing priorities in the world of computing—and how NeXT is positioned to take advantage of them.

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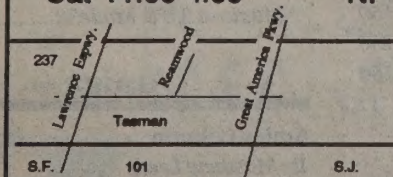
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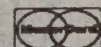
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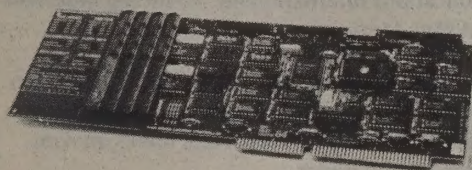
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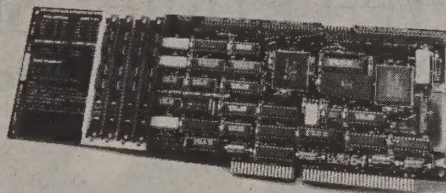
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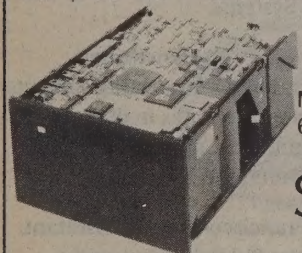
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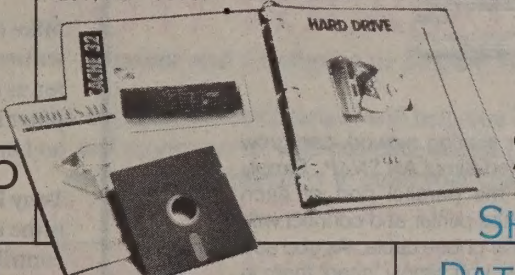


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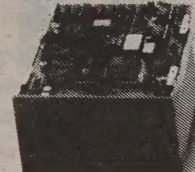


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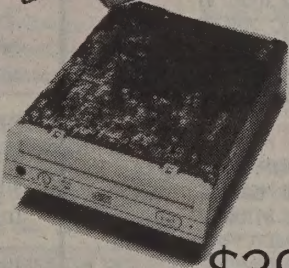
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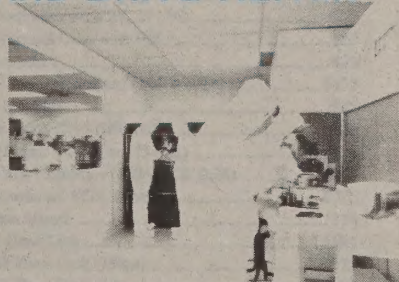
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CONTRIBUTORS

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Wayne A. Yacco is an editor, writer, and consultant specializing in the business applications of computers. He's a frequent contributor to many trade and business publications, and lives in Burbank.

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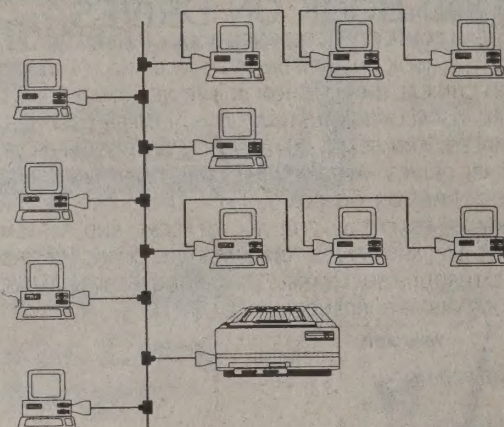
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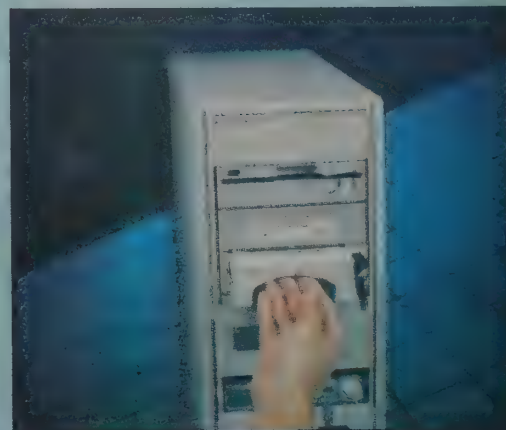
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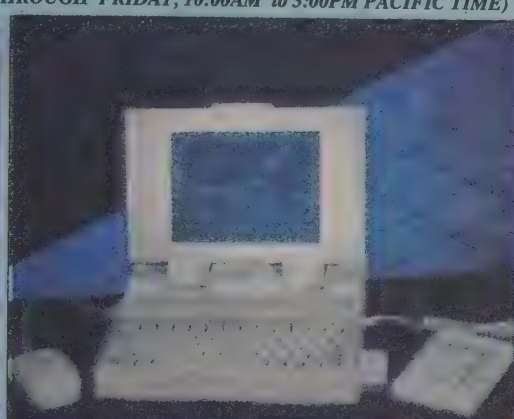
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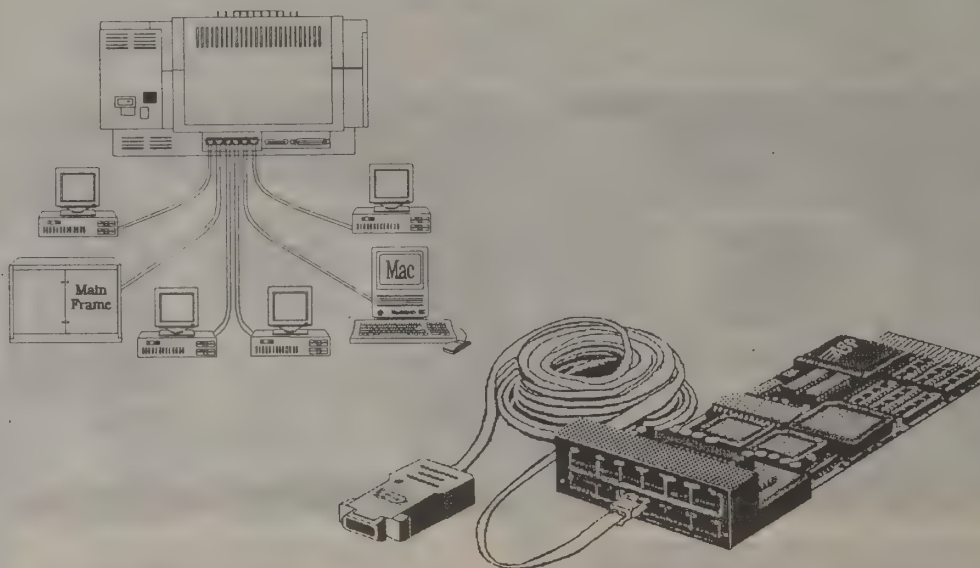
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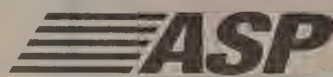
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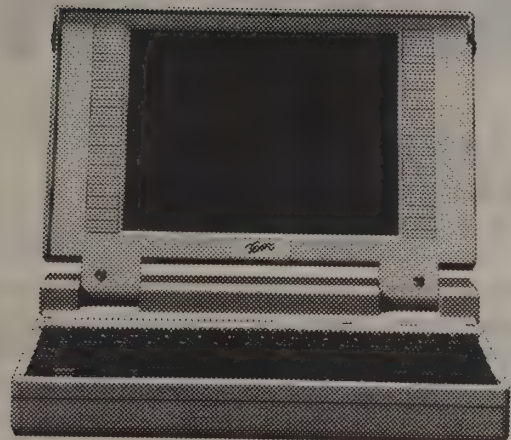
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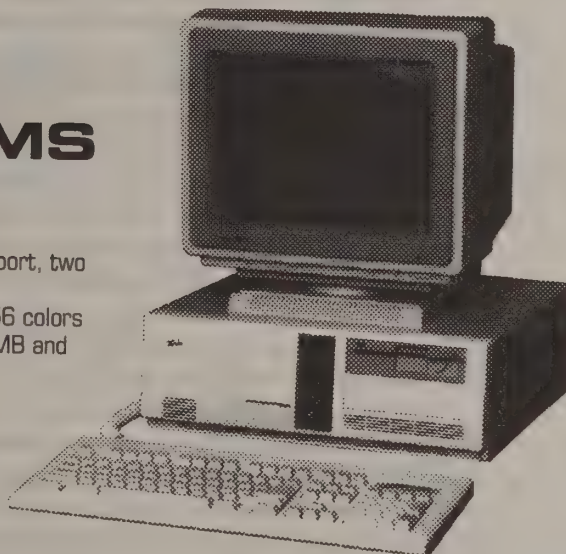
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INDUSTRY INSIGHT

Consumer Multimedia

BY PAUL
HOFFMAN

CONSUMER ELECTRONICS AND COMPUTERS: PORTENTS FOR 1992

Unless the recession deepens or becomes a depression, many more computer users will find themselves playing and watching this year. Entertainment such as television and music will probably dominate the new computer announcements for the year. At the three big consumer conferences at the beginning of the year—the Consumer Electronics Show, Macworld Expo, and the National Association of Music Merchants—the message was the same: It's the year of consumer entertainment.

Much to the chagrin of many faithful Macintosh users, Apple President John Sculley made a much more important keynote speech at the Consumer Electronics Show (CES) than at Macworld Expo. At CES, he announced that Apple would begin this year to offer Macintoshes with more built-in capabilities for entertainment, specifically more color and CD-ROM readers. He called these "consumer-configured versions of popular low-end Macintosh products," meaning less expensive Macintosh computers on the low end of the Mac line. Although his Macworld Expo speech emphasized another Apple technology that ties into entertainment, namely its QuickTime multimedia enhancements to the Macintosh operating system, his CES speech had far greater impact.

The second part of his CES speech was a preannouncement of future Apple products that won't look much like computers. These products will help people handle information in an active rather than passive fashion, defining a new market that's more interactive than television and stereo. "The transformation from analog to digital technologies," said Sculley, "opens the possibility for a wide

range of potentially very innovative and useful devices that we are calling generically Personal Digital Assistants (PDAs). Unlike personal computers, which are general purpose products requiring a certain level of user skill, PDAs will focus on specific functional capabilities and will be designed to be much easier to use than computers. PDAs will include such devices as electronic books, electronic organizers, multimedia players,

At CES, Macworld Expo, and NAMM, the message was the same: It's the year of consumer entertainment.

electronic note takers, display telephones, and personal communicators." Of course, this begs the question of why Apple doesn't simply make its computers as easy to use as these PDAs.

One area in which Apple is very different from other companies in the consumer arena is in networking. Apple will use its knowledge of networking to make PDAs interact on a much more intelligent level than current technologies. For example, your electronic organizer will be able to exchange information with your clock radio and your VCR, and maybe even your coffee maker.

On the floor at Macworld Expo, the crowds were much more interested in actually buying video technologies than in previous years. While many announcements were

made last year, particularly when QuickTime was revealed, few people were buying. This year, many dealers reported that they sold out of items such as video input boards and video mixing systems. Although there was a great deal of tire-kicking in Apple's QuickTime demonstration, people were more interested in established products. The crowds in the Educorp CD-ROM showcase (and at Educorp's cash registers) showed that people are now buying much more than last year. Other vendors of visual-based CD-ROM products such as Voyager were also swamped.

NEW FCC PLAN MAY MAKE WIRELESS EASIER

Mobile communications in everything from telephones to computers may become much more robust in the next ten years. For years, network and computer manufacturers have been pleading with the Federal Communications Commission (FCC) to allow more frequencies for high-speed data communications. Unfortunately, large chunks of the radio spectrum were allocated over fifty years ago to groups who do not use them much, such as police and railroads, but those groups have first priority.

Under a new proposal, the FCC is recommending that these large bands of frequencies be allocated to "emerging technologies." The groups using the bands will predictably protest, but the FCC has come up with a novel way for them to share: any new technology that displaces a current one in a particular band must subsidize the current technology's move to another area of the radio spectrum. Thus, if someone wanted to use the police radio spectrum for something like hand-held computers communicating with satellites, the people requesting the



Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

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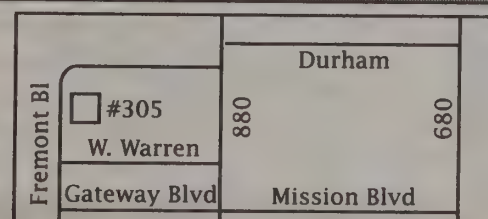
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police bands must pay to have the police moved to another area.

"This is the first time the commission has proposed a marketplace mechanism to make room for new services, where the new services with new technologies buy out the old ones," according to the FCC's chief of engineering and technology, Thomas Stanley. The free-market approach is logical, since many of the desired bands are allocated to public safety, not other consumer uses. If a group of network vendors wants a particular band badly enough, they can pay to move the current users (including buying them new equipment) and then take over the band.

These moves may not be as expensive as they sound, because of the speed at which digital technology has evolved. For example, assume that a group wants to use the radio bands currently used for police voice communications for digital transmission of data. The group has many choices. They could find another band that is usable by voice and pay to upgrade all the police transmission equipment to that band. Alternatively, they could simply add digital converters to the current police equipment and dedicate a much smaller part of the band to digitized voice for the police. This would make voice transmis-

sions clearer and less wasteful of the spectrum. It would also help improve reliable voice digitization technology, and might give the police additional benefits, such as lower-cost terminals in their cars.

The FCC is accepting comments on the proposal for the next few months. Apple and Motorola have been two major proponents of freeing particular wavelengths that are best for the current technology. If the proposal is accepted, some little-used frequencies may be reassigned by the end of the year. It is likely that Congress will support the proposal, since it will boost the American communications industry and make users less reliant on expensive phone lines for communications.

NEW PEN-BASED COMPUTERS DROP COST BY VEERING AWAY FROM STANDARDS

Six months ago, new pen-based computers were all the rage. Computers that will use Microsoft's Windows for Pen Computing and GO's PenPoint are still waiting for either of those operating systems to be released. Even when they are available, the interest in pen-based computers dropped off significantly

when the prices (often upwards of \$4000) were announced. Some businesspeople can afford to avoid typing by spending the extra thousands of dollars, but not many.

Last month, two companies broke from the ranks and announced low-cost pen computers. Neither runs the standard operating systems, and neither has a high-powered Intel chip inside. Instead, to keep the price under \$2000, they use less-powerful (but much cheaper) CPUs and custom-configured software. As such, they present users with machines that cost half the price of the previously announced crop and represent a much more accessible system.

Poqet, the Fujitsu-owned manufacturer of ultra-tiny handheld computers, announced the PoqetPad that fits easily in the palm of your hand. Its CPU is an NEC V20HL, a low-power CPU that has the processing power of an old IBM XT. It comes with 640K of RAM and 1MB of ROM that includes MS-DOS v3.3, handwriting recognition software, and software that makes the pen look like a mouse to standard PC software. You can add additional cards that follow the PCMCIA standard for data cards such as additional RAM, software programs in ROM, and nonvolatile memory.

The PoqetPad box weighs 1.2lbs. and can easily fit in a belt pouch. It will run for sixteen hours on two AA batteries. The majority of the box is taken up by the 7.25" (diagonal) screen that shows a full 80 characters by 25 lines and CGA graphics. Clearly, the system will be almost exclusively used for text-based MS-DOS programs, and will most likely support custom programs designed for particular markets.

Competing with the PoqetPad is the Infolio from Portland-based startup PI Systems. Instead of aiming at the handheld market, the Infolio, sold by the manufacturer for \$1900, is a clipboard-sized computer that weighs just under 3lbs. The screen offers full VGA 640 x 480 resolution, giving programmers much more space for information. It is powered by a Motorola 68331 CPU (a low-power version of the popular 68020). It comes with a proprietary graphical user interface and operating system.

PI Systems is betting on the low cost to win over developers and end users. As an OEM, they expect mostly to sell to vertical markets and consultants who support companies, not computer stores. PI Systems is supplying a programming environment that runs on many computers to make it easier for developers to create programs for the Infolio. The unit uses eight AA batteries and has special power-reducing hardware. Like the PoqetPad, the Infolio can use PCMCIA memory cards. ■

Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

- When SunSoft releases the Solaris 2 operating system for PCs, NEC and Toshiba will start shipping it installed on high-end PCs. These preconfigured PCs will be used as workstations similar to the bottom of the line from Sun and Hewlett-Packard. The only American company to have made a similar announcement is Dell.
- SunSoft has also contracted with Just Systems for Just to create a version of the ATOK7 Kanji front end for Solaris 2 and SunOS 5. In Japan, every program that uses the Kanji pictographic characters must have a way for users to enter the characters into the program. Just Systems' ATOK7 is by far the most popular front end available for PC compatibles, giving SunSoft a large advantage for its software. Just will also port Ichitaro, the best-selling word processor, to the new Sun systems. Just is also working with Apple to make a version of ATOK7 for the Macintosh.
- Cosmo World has developed Macintosh OCR software that can interpret about 15 characters a second. It will read all JIS 1 Kanji characters, as well as hiragana, katakana, and the English alphabet. It costs around \$2000.
- NEC has started a PC-based information service for female employees. The "Working Life" service is a closed user group targeted at more than thirty thousand female employees of NEC and affiliated companies. The service contains menu items such as personal relationships, marriage, and child care while working. NEC hopes that the service will provide information on various work opportunities to women who leave their jobs when they get married or have children, encouraging them to come back to work.
- In other NEC-women news, NEC will create an all-women sales organization to handle sales and training for the company's "Hyper 7" business word processor. The company currently has about two hundred "Word Processor Ladies" in seven locations throughout Japan doing both sales and training for the word processor. NEC will increase the number and formalize the program.

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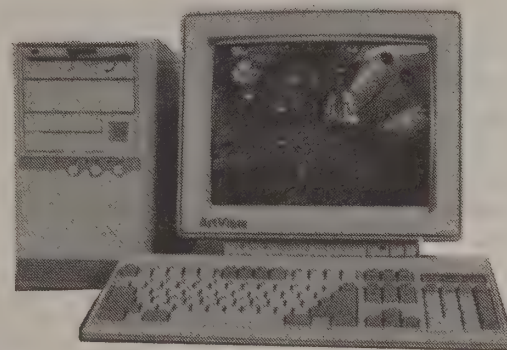
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486 - SX20/25	\$1325	\$1359	\$1395	\$1500
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386DX - 33MHZ	\$1229	\$1275	\$1300	\$1549

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- 1.2MB Floppy Drive
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- 101 Keys Keyboard

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- 101 Keys Keyboard

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MicroTimes Stock Index Shatters Old Record

Ignited by the Fed's 1% drop in the discount rate in December, Wall Street sent 1991 on its way with a rally for the record books. 1992 continued the trend as investors dissatisfied with low returns in other investments continued to pour their money into the stock market. For the trading session ended January 20th both the MicroTimes Stock Index and the Dow Jones Industrial Average find themselves in previously uncharted territory.

For the period, the Dow Jones Industrials soared 358.90 points, or 12.4%, to close well above the 3200 level at 3254.03. But this was a paltry return compared to the MicroTimes Stock Index which, fueled by software makers' record performance, exploded to the tune of 706.56 points, or 21.71%, to close the period at 3961.41, easily a new record for this index.

The strongest performer during the period was Microsoft, as the software concern reported second-quarter earnings of \$0.90 a share during the period. The positive earnings news combined with the bull market to send shares in the company up \$20.50 to a closing mark of \$122.50. Microsoft's shares traded as high as \$133.25 during the period before profit-takers extracted their due from the high-flying company.

The largest gainer on a percentage basis during the period was Informix, as analysts began to sing the company's praises in earnest. The result was a 79.2%, or \$9.50, increase in the company's share price to a closing price of \$21.50.

Another software concern benefiting from a positive earnings report was Oracle Systems as the firm reported second-quarter net income equal to \$0.10 a share, up from a loss of \$0.01 during the same period a year ago. Investors responded by bidding up shares in the company \$6.13, or 49%, to end the session at \$18.63.

Apple Computer's stock price soared during the period as well, adding \$14.63, or 29.6%, en route to a closing price of \$64.00. The company reported first-quarter earnings equal to \$1.36 a share, up from \$1.28 during the same period a year ago. Apple's earnings were all the more impressive when compared to the results announced by some of the other large hardware makers.

IBM, for example, announced a fourth-quarter loss of \$1.38 billion, and a \$564 million loss for the year. It was the first time Big Blue had posted a losing year. However, investors betting on an economic recovery and better times ahead for the newly restructured firm bid up the company's shares \$6.63 to a closing mark of \$95.25.

Digital Equipment also announced a loss for its most recent quarter, equal to \$138 million. Investors were more hesitant to respond positively to this news, however, as Digital's shares were one of only three in our entire index to lose value during the period. For the trading session, shares in the firm lost \$1.38 to close at \$53.63.

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 12/12/91	CLOSING PRICE 01/20/92	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	PRICE/EARNINGS RATIO	ANNUAL DIVIDEND RATE	YIELD	52 WEEK HIGH	52 WEEK LOW
SOFTWARE											
OTC	Adgbe	(H) ADBE	52.50	62.50	10.00	19.05	28	0.32	0.51	68.50	33.75
OTC	Aldus	ALDC	34.75	35.75	1.00	2.88	20	0.00	0.00	59.88	28.75
OTC	Autodesk	ACAD	33.25	38.25	5.00	15.04	16	0.48	1.25	62.25	29.50
OTC	Borland	(H) BORL	74.25	72.00	-2.25	-3.03		0.00	0.00	86.75	37.25
OTC	Informix	(H) IFMX	12.00	21.50	9.50	79.17		0.00	0.00	24.25	2.63
OTC	Lotus	LOTS	22.75	31.00	8.25	36.26	310	0.00	0.00	40.75	14.75
OTC	Microsoft	(H) MSFT	102.00	122.50	20.50	20.10	40	0.00	0.00	133.25	56.50
OTC	Novell	(H) NOVL	54.50	57.50	3.00	5.50	52	0.00	0.00	65.00	18.63
OTC	Oracle	(H) ORCL	12.50	18.63	6.13	49.00	75	0.00	0.00	18.63	5.50
OTC	Software Publishing	SPCO	15.25	21.38	6.13	40.16		0.00	0.00	35.25	12.50
OTC	Symantec	(H) SYMC	38.25	45.25	7.00	18.30	67	0.00	0.00	51.00	16.38

HARDWARE											
OTC	Apple	AAPL	49.38	64.00	14.63	29.62	25	0.48	0.75	73.25	40.25
OTC	AST Research	ASTA	17.75	22.00	4.25	23.94	10	0.00	0.00	32.75	14.50
NYS	Commodore	CBU	13.00	16.88	3.88	29.81	10	0.00	0.00	21.63	10.13
NYS	Compaq	CPQ	27.00	34.13	7.13	26.39	16	0.00	0.00	74.25	22.13
NYS	Digital Equipment	(L) DEC	55.00	53.63	-1.38	-2.50		0.00	0.00	83.00	48.50
OTC	Dell	DELL	27.38	32.25	4.88	17.81	17	0.00	0.00	36.25	19.50
NYS	Hewlett-Packard	(H) HWP	49.50	61.38	11.88	23.99	20	0.80	1.30	63.38	34.75
NYS	IBM	IBM	88.63	95.25	6.63	7.48		4.84	5.08	139.75	83.50
NYS	Silicon Graphics	(H) SGI	40.25	52.75	12.50	31.06	41	0.00	0.00	53.50	24.25
OTC	Sun Microsystems	SUNW	25.38	33.13	7.75	30.54	18	0.00	0.00	38.63	20.75
NYS	Xerox	(H) XRX	63.00	69.50	6.50	10.32	12	3.00	4.32	71.25	41.38
NYS	Tandy	TAN	25.00	27.13	2.13	8.50	11	0.60	2.21	36.50	23.38

CPUS											
NYS	Advanced Micro Device	(H) AMD	15.75	19.38	3.63	23.02	13	0.00	0.00	20.50	5.38
OTC	Intel	(H) INTC	43.50	61.50	18.00	41.38	16	0.00	0.00	63.00	38.50
NYS	LSI Logic	LSI	7.50	9.75	2.25	30.00		0.00	0.00	12.50	6.25
OTC	MIPS	MIPS	8.50	12.00	3.50	41.18		0.00	0.00	20.88	7.88
NYS	Motorola	(H) MOT	60.38	78.75	18.38	30.43	23	0.76	0.97	79.88	46.88

COMMUNICATIONS											
NYS	AT&T	(H) T	37.88	40.25	2.38	6.27	63	1.32	3.28	41.38	30.25
NYS	BellSouth Corp.	BLS	49.50	49.63	0.13	0.25	16	2.76	5.56	54.88	45.38
OTC	MCI	(H) MCIC	27.63	32.38	4.75	17.19	17	0.10	0.31	35.00	19.38
NYS	Northern Telecom	(H) NT	44.38	48.25	3.88	8.73	25	0.32	0.66	48.25	26.25
NYS	Pacific Telesis	PAC	42.25	41.63	-0.63	-1.48	16	2.12	5.09	46.75	38.50

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DECLINES	3		LARGEST PERCENTAGE GAINER			Informix	79.17 %
UNCHANGED	0		SMALLEST PERCENTAGE LOSER			Borland	-3.03 %
NEW HIGHS	16						
NEW LOWS	1						

CLOSING QUOTES FOR CHART:

	CLOSE 12/12/91	CLOSE 01/20/92	NET CHANGE IN MONTH	PERCENT CHANGE IN MONTH	DATE	MICRO TIMES	DOW JONES
MICROTIMES STOCK INDEX	3223.68	3254.85	31.17	0.97	06/05/91	3178.90	3005.37
DOW JONES INDUSTRIAL AVERAGE	3004.92	2895.13	-109.79	-3.65	07/05/91	2850.09	2932.47
STANDARD & POOR'S 500 STOCK INDEX	384.20	381.55	-2.65	-0.69	08/02/91	3132.83	3006.26
N.Y.S.E. COMPOSITE	211.82	210.44	-1.38	-0.65	08/29/91	3265.70	3049.64
NASDAQ COMPOSITE	525.13	536.02	10.89	2.07	09/27/91	3216.77	3006.04
					10/25/91	3223.68	3004.92
					12/12/91	3254.85	2895.13
					01/20/92	3961.41	3254.03

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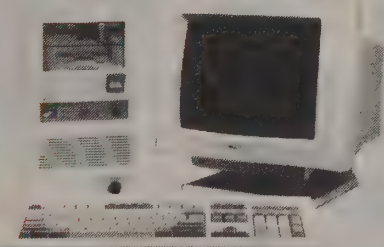
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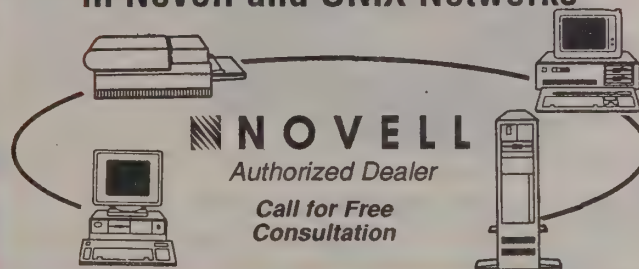
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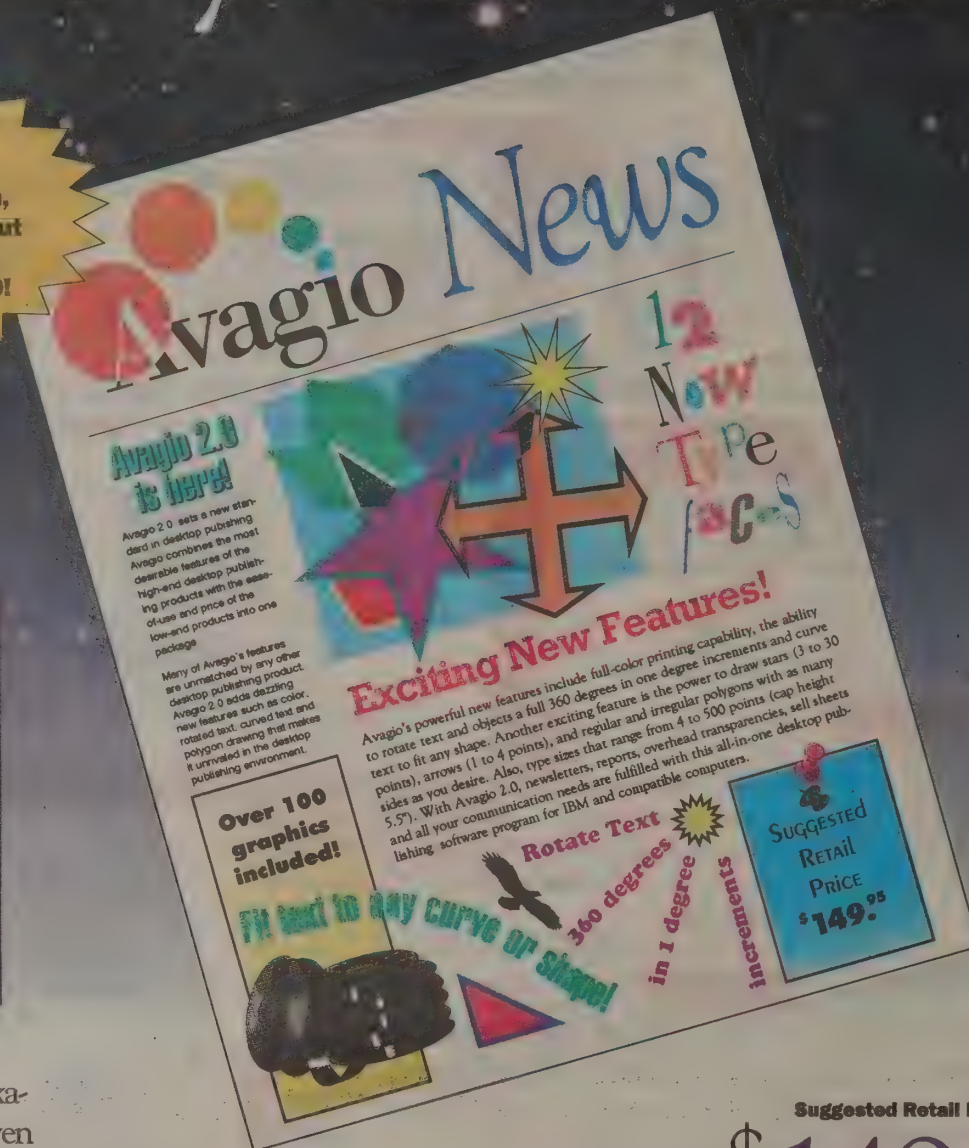
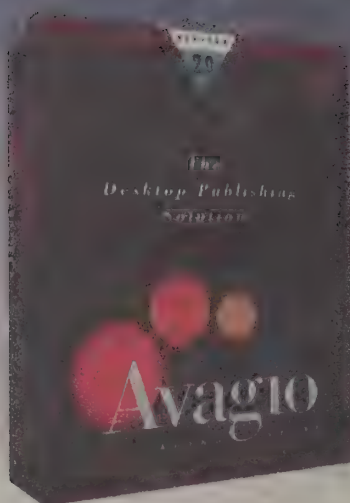
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Taxes, Computer-Based Political Power & Mega-SneakerNet

BY JIM WARREN

This column is about what isn't, but could be.

OK, folks. It's election year, and it's time we used the political power of our processors.

All previous citizen demonstrations, community action, and political revolts have required (hard-to-organize) face-to-face community meetings and planning, (expensive) mass distribution of leaflets, (very expensive) newspaper advertising, and/or

are probably around fifteen million users on public and private non-BBS computer networks in the US.

Then there's the big net. The Internet consists of about five thousand networks connecting around a million host computers with anywhere from five to ten million users—at the least.

And I haven't even mentioned the high-priced spreads—CompuServe, GEnie, and censor-prone Prodigy (*sic*). In-house company

um—escalating the effort via the novel notion of an informed electorate.

Then this project becomes not only enjoyable and informative; it can be powerfully persuasive.

REALIZABLE FANTASIES

(exorbitant!, uninformative, emotion-based) broadcast advertising. This has functionally guaranteed that political power belonged to those who could buy it.

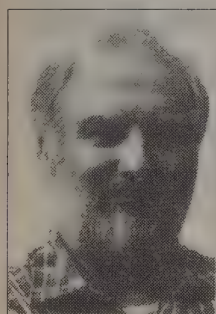
LANs offer additional potential when policy permits employees freedom of electronic speech.

What's more—most politicians have little or no idea this exists. So far. (Interestingly, the FBI, Secret Service, CIA, NSA, and other law enforcement groups are much more aware of it. The regional telephone companies are also *very* aware of it; several are quietly seeking costly tariffs that, if permitted, will destroy it.)

SNEAKERNET FOR ALIENS

Back to techno-projects: Transferring data between computers by copying it onto a diskette and walking it over to the target computer is often called a "SneakerNet" transfer—even when it's mailed across the nation. For years, it has also been common in the Mac world to carry many-megabyte external hard disks from one Mac to another to exchange "significant" data—semi-trivial because all Macs connect to hard disks via a SCSI interface, and all of them include an external SCSI plug.

Extending SneakerNet, there are utility



Copyright © 1992 by Jim Warren, 345 Swett Rd., Woodside, CA 94062. All rights reserved. Jim Warren founded InfoWorld, the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's Computer Chronicles, founding editor of Dr. Dobb's Journal, and has chaired various computer trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.

He organized and chaired the 1991 First Conference on Computers, Freedom & Privacy, sponsored by a dozen nonprofit and industry organizations, and is a member of the Board of Directors of Autodesk, Inc.

NET POWER FOR PEOPLE

The computer networks provide a hyper-cheap, *citizen-based* alternative to big-bucks political power. They facilitate online meetings, asynchronous planning, almost-free environmentally sound "leafletting," and local and global "advertising" costing no more than time, effort, and (low or free) connect-time fees. More important—information accuracy is self-regulated by fast feedback that balances false or propagandized statements.

Example circulation—local to global: The WELL in Sausalito has about fifty-five hundred subscribers. BMUG, home-based in the People's Republic of Berkeley, has over ten thousand members. There are tens of thousands of BBSes—mostly free or very low-cost, mostly serving local communities. Many if not most are networked. The virtually free Fidonet is the largest BBS net, with an estimated two million users on thousands of BBSes, mostly in homes.

There are far more BBSes than there were printing presses, also mostly in homes, which were instrumental in another citizen revolution, circa 1776.

On a national and global level, Brian Reid's recent stats estimate that the cooperatively anarchistic USENET has about 1,913,000 users on about forty thousand hosts. There

TAX INSTRUCTIONS TO POLITICIANS

The "Tax-Use" form appearing with this column has already been uploaded to the nets, the first of several computer-based, election-year citizen-action projects. This one is primarily for entertainment—and spleen venting. However, it can prove, for the first time, that *our* info-medium is a powerful tool for instructing our representatives. (Additionally, *MicroTimes* has about two hundred thousand distribution...)

This particular "taxing" venture is also designed to be informative. Did *you* know these budget allocations?

And if its circulation on the nets catches on, consider the possibilities: Federal representatives—to say nothing of local politicians—regard a few dozen somewhat-individualized messages as significant, often persuasive, citizen input. What if several *thousand* taxpayers send candidates this form? Further, if they feed back their data to me, I can circulate summaries on the nets—and in this col-

All previous citizen demonstrations, community action, and political revolts have required face-to-face community meetings and planning, mass distribution of leaflets, newspaper advertising, and/or broadcast advertising. This has functionally guaranteed that political power belonged to those who could buy it.

programs that permit exchanging some *diskette* data between various alien machines, e.g. PC-to-Mac, etc. Exchanging ASCII text-files across alien platforms works reasonably well. (Exchanging text-formatting and non-ASCII text is more difficult, but that's not the point, here.)

But the half-dozen standard diskette formats are limited to a "tiny" 1.4MB or less—hardly adequate for modern micro power. Now that PC interfaces are finally catching up with the Mac, and SCSI interfaces are becom-

ing common on PCs, it's time to have utilities that exchange data between alien platforms on SCSI hard disks. This should include Unix-based workstations such as Suns and Silicon Graphics machines, and not be limited merely to PCs and Macs.

Cross-platform SCSI SneakerNet is a significant software business opportunity. This idea was prompted by June Genis of Woodside, who regularly faces such "alien" exchanges in her job at Stanford's comp center and as a Libertarian Party maven

movin' voter-registration files—for 350,000–600,000 voters. Just one of today's typical-size microcomputer datafiles. (Oops! Politics jus' sorta snuck back in. Heh!)

Aside: Some might say that larger-capacity removable media—tapes, disks, Flopticals—will satisfy this need. But far more micros have SCSI interfaces with external plugs than have any other high-capacity drive or plug-gable interface—now and for at least the rest of this century. Further, SCSI hard disks are faster, more reliable, and competitively priced per online megabyte, compared to normal removable-media alternatives. And finally, the name of the game with micros has always been computer power through high volume at low cost.

DO-IT-YOURSELF TAX-USE INSTRUCTIONS TO POLITICIANS

[please copy, post and circulate, widely]

As we approach tax-day, it emphasizes that we again worked more than a third of last year for the government and politicians. This year, let's tell them how *we* want them to use the hard-earned money they take from us. When we send in our taxes, let's also send copies of this to our current and potential elected representatives, especially to this year's political candidates. (Let's not blame the IRS; they're just doing what our elected representatives tell them to do.) Please feel free to copy this to friends, neighbors, customers, business associates and company and community bulletin boards.

Also, so politicians can't bury the results: If you send a copy of your form to me, I will compile and distribute and/or publish the results — with copies to appropriate media and officials — to the extent that I can cover out-of-pocket data-entry and publication/distribution costs. Please at least include your ZIP-code for locale-identification.

If you include name and address (and fax-number and electronic-mail address, if available), I will send you a copy of the results. Your name and personal information will not be disclosed, but I will summarize the number and percent of named respondents.

☐ I am sending a few dollars to help cover processing and publicity/distribution expenses (to "Jim Warren" please). (After data-entry expenses, any/all remaining donations will be used for wider distribution and/or publication, possibly even including ads. My time/work is entirely pro bono. —JW)

☐ Jim, I want something for nothing. Process my data and give me the results, but I'm not willing to help pay any of the out-of-pocket expenses. (If this option is widely checked, then we will know what drives much of our tax-and-spend problems, won't we?)

— Jim Warren, "Political Irritant," 345 Swett Road, Woodside CA 94062; fax/415-851-2814; e-mail: jwarren@well.sf.ca.us -or- jwarren@autodesk.com
[FYI: Founder of Infoworld newspaper; PBS "Computer Chronicles" founding host; MicroTimes Contributing Editor and "futures" columnist; founding editor of Dr. Dobbs's Journal; organizer and Chair of the First Conference on Computers, Freedom & Privacy; member of the Autodesk, Inc. Board of Directors; etc., blah blah blah.]

To: _____

TAX ALLOCATION INSTRUCTIONS FROM A VOTER

Here are the taxes that I *know* you are taking from my work last year, and here is how I want you to use them. (For other projects that you or your campaign donors desire, please depend on the hidden taxes that I cannot easily identify.)

This is a very serious matter to me, even though this note is a form. Please respond and tell me how much of our earnings *you*, as our elected representative, want to take in taxes, and how much *you* want to spend in each budget-area. Please send me _____ copies of your response for my friends, neighbors and business associates. (And, a lack of response will be noted as a response.)

How to use MY taxes:			current federal allocations:		Fiscal 1992 Federal Budget
	percent	dollars	percent	millions	[from the 2/9/91 Congressional Quarterly, pages 354-355]
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2.	%	\$	2.2%	35,679M	International Affairs
3.	%	\$	1.2%	18,934M	Science, Space and Technology
4.	%	\$	0.3%	4,129M	Energy
5.	%	\$	1.2%	19,708M	Natural Resources and Environment
6.	%	\$	1.2%	20,219M	Agriculture
7.	%	\$	6.5%	105,780M	Commerce and Housing Credit
8.	%	\$	2.1%	34,312M	Transportation
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my tax:	100.0%	\$	100.0%	\$ 1,618,447M	your FY-1992 budgeted federal expenditures

Thanking you for your attention to this constituent request, I remain,
From: _____

ZIP: _____

Now that PC interfaces are finally catching up with the Mac, and SCSI interfaces are becoming common on PCs, it's time to have utilities that exchange data between alien platforms on SCSI hard disks. This should include UNIX-based workstations such as Suns and Silicon Graphics machines, and not be limited merely to PCs and Macs.

(Hidden gotcha: "SCSI," standing for Small Computer Systems Interface, is appropriately pronounced "scuzzy." There are actually *several* SCSI "standards" that are only partially compatible—a polite way to say they're incompatible. Further, even the most humdrum of "standard" SCSI interfaces are infuriatingly sensitive to cable length, disk manufacturer, disk model, interface version, other peripherals in the SCSI daisy chain, etc. Nonetheless, it beats the hell out of having to change a PC's internal disk-interface cards and DOS configurations every time an external hard disk is changed.)

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Looking Inside DOS To Help With Your Work

BY ED KAHN

There are many users who still prefer to work from the familiar C> prompt, in spite of the current move toward Windows. Each successive release of MS-DOS has both added new features and capabilities as well as increasing the skill level required to get the most out of this operating system. DOS-based software can be especially rewarding for portable computer users. Despite the advances made in the quality of displays for portable computers, I still find using Windows on a monochrome screen less than optimum.

If you decide to stay working with DOS, it is truly a worthwhile investment of your time to learn about the power of DOS and to become familiar with the capabilities of the programs included with the operating system. Visit any bookstore with computer literature and you will find a variety of books that will attempt to teach you more than you would even want to know about DOS 5.0. My general advice to beginners is to have a specific question in mind when they visit a bookstore and examine several of the available books. Buy the vol-

ume that seems the most clear and straightforward. I also suggest buying one of the simpler books rather than a thousand-page tome.

L A P T O P S

However you gain your introduction to DOS—and it's even possible to learn about it from the documentation that comes with MS-DOS 5.0—you will find that learning more will increase your effectiveness. Most of the questions friends ask me about computers concern using the operating system. It's clear that even learning a half dozen commands will make life a lot easier for most computer users.

But what about the user who has mastered the basics and wants to explore the system in more depth? As I have mentioned, there are many books. But recently I ran into a publication that, while more expensive than most books, offers a continuing treasure of tricks and basic information, all presented in a simple and straightforward style. *Inside DOS*, published by The Cobb Group of Louisville, Kentucky, is a monthly newsletter that features different aspects of DOS each month.

Each issue of *Inside DOS* focuses on a command; discussing it in some detail, presenting examples that are fully explained and illustrated. Anyone familiar with the basics of DOS will be able to follow the discussions. As you read the 12-page newsletter each month, your knowledge of the operating system will increase, saving you time in all of your computing.

Now in its third year, the depth and scope of the discussions

*DOS Is Still The Best
Choice For Portables,
And Reading Inside DOS
Each Month Will
Increase Your Knowledge
And Understanding Of
This Operating System*

presented remain impressive. The articles are long enough to take you into the power of the commands, but not so long that you will be left in the dust if you are not a sophisticated computer user. I like to browse through the newsletter rather than read it from cover to cover. In each issue there will be at least one article that I want to read in full. Also, back issues remain just as relevant as the newer ones. It is often interesting and helpful to review the table of contents of past issues as your knowledge of DOS grows.

While most articles focus on DOS commands, there are also discussions of broader interest. For instance, a recent issue contained an article on using the `autoexec.bat` file to customize your system. Another issue discussed, in two pages, whether you need a mouse, the trade-offs between serial and bus models, and the history of the device. Another issue presented a detailed discussion of the `DIR` command. You may be amazed to discover the power of this command and to learn the kinds of information that you can find using its sophisticated capabilities. A final article that recently caught my attention was a discussion of how DOS 5.0 undeletes files. This is a new feature with the latest version of DOS and is extremely useful when you find you have mistakenly erased a file.

I first learned of this valuable publication through a card that came with my DOS 5.0 upgrade. Since then, I have discovered that The

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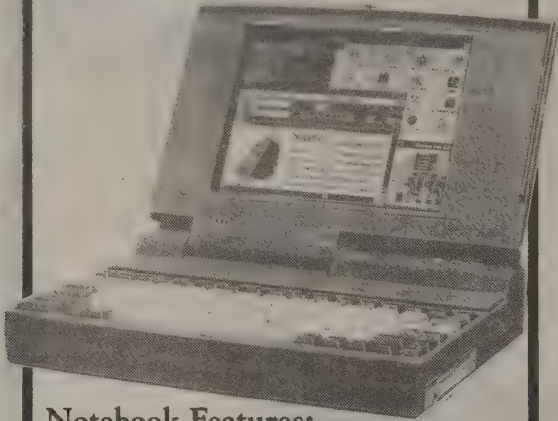
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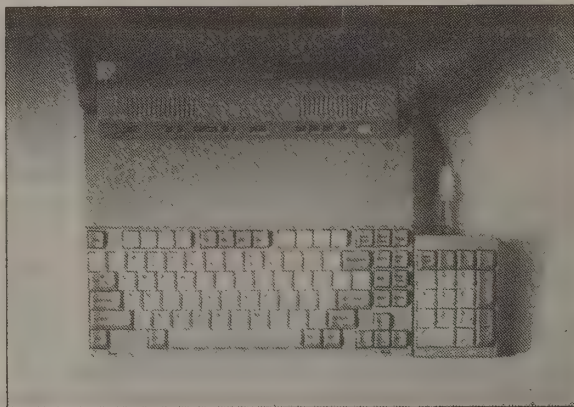
Computer of the Month: IBM PS/2 L40 SX

For years the portable market has eluded Big Blue. Mistake after mistake has preceded the introduction of an acceptable portable unit. But at last, IBM has come across with a solid entry. This 20MHz, 386SX laptop weighs 7.7lbs. and includes 2MB of RAM, expandable to 18MB. A 60MB hard drive and a 1.44MB 3.5" floppy drive are standard equipment.

The keyboard on the computer is excellent. And much to their credit, IBM has not used an embedded numeric keypad. Rather, they have opted to include a standalone numeric keypad that connects by cable to the portable unit. This is really a satisfactory solution to the old problem

of getting a decent keyboard in a small unit. The numeric keypad folds up with a cover over the keys when it is not in use. When closed, it measures about 3.25" x 4.75", making this keypad small enough to easily carry along.

Although the publicity release says that the keyboard is virtually identical with that found on other PS/2 computers, I believe that the keys have a considerably shorter travel distance than that of its full-size brother. Nevertheless, it is easy to use and has an excellent feel. The keyboard and numeric keypad provide a full 101-key layout.



The LCD display is a 10" VGA screen that is easy to read, offering thirty-two shades of gray. The larger display helps reduce eye strain, especially when working for long stretches of time. Because of this larger screen, you experience the same aspect ratio as with most desktop systems. This means that a circle will look like a circle rather than the oval you see on some portables with smaller displays. If you need color or a full-size monitor, it's easy to connect a standard VGA monitor to the port on the back of the unit.

IBM includes an AC power supply that doubles as a charger for the NiCad battery. This battery will run the computer for up to three hours. Like many manufacturers, IBM includes an elaborate battery system to assure that you will not lose your data when changing batteries. Warning bells and whistles alert you before it is time to change and a suspend mode keeps your data safe. They recommend carrying an extra battery (\$99) when you travel.

It is becoming increasingly common these days for portables to offer not only elaborate display aids to alert you to battery life, but also which drive is being accessed and a host of other conditions of the computer. IBM has included some icons on the front of the machine.

Although this is a PS/2 machine, the documentation is not extensive. I was disappointed, as I thought there would be a more elaborate discussion of OS/2. Their warranty, however, is excellent and extensive—it lasts twelve months and is good in over eighty countries.

In some ways, IBM now caters to a niche market. Their products are directed to a consumer who needs the IBM name and the pervasiveness of the company. This machine is excellent in every way, but it is interesting to see how price pressure has affected even the biggest of the big. Originally the PS/2 L20 SX sold for over \$5000, but under the pressure of the clones, the price has been reduced to \$3645. At this price, you are not paying a terrible premium for the three little letters.

This competitively priced machine offers expandability, and IBM promises more connectivity in the future. Currently you can get a fax modem (\$459), extra serial port (\$135), and a host of other options. The most impressive option, however, is the incredible amount of memory the system can take—up to 18MB. The memory modules are expensive, ranging from \$1950 for the 8MB unit down to \$489 for a 2MB module.

RESOURCES:

IBM PS/2 L40 SX, \$3,645
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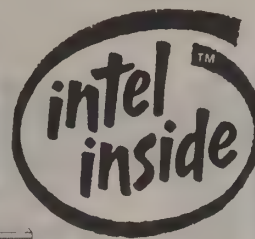
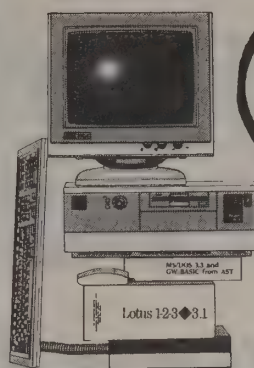
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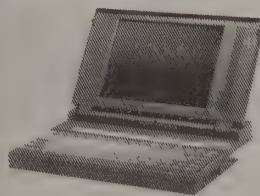
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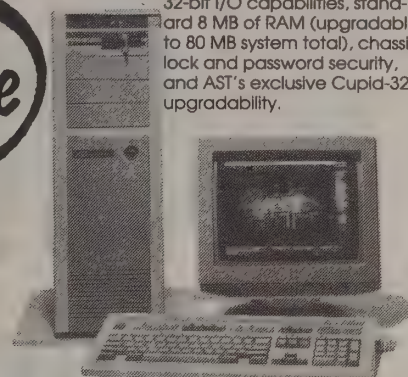
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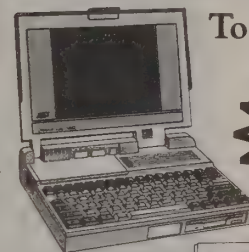
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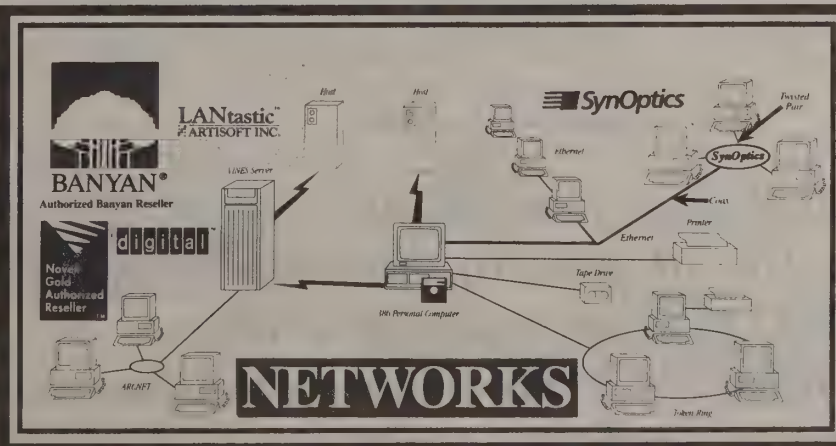
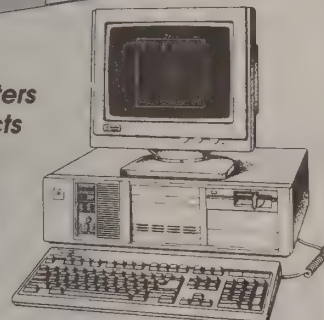
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United Airlines Turns To Silicon Graphics For More Power

BY TONY
ROCCO



United Airlines found the Power Iris an attractive alternative to a mainframe.

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Switching From A Mainframe To The Silicon Graphics Power Series RISC-Based Workstations Helps United Solve Their Compute-Intensive Crew Scheduling Problems

This is a story about how one tiny crack in the mainframe armor can lead to larger ruptures. Once UNIX gets its multiuser tentacles into a business, it can be only a matter of time before it becomes a preferred solution for other applications, even mission critical ones that have a major impact on the bottom line.

Take United Airlines, for example. A few years ago, they installed a UNIX system consisting of ten DEC 3100 workstations, a Unisys 6000 communications server, and a Unimatic mainframe to handle real-time operations control. Quite a small foray into the world of client-server architectures for mainframe-dependent United, but enough to set a precedent. Within a year, plans were in the works to install a much larger network that would take over about a third of the processing load of an IBM 3090/600S mainframe. United Airlines wanted more processing power to run a crew scheduling application critical to its profitability.

MORE POWER, MORE PROFITS

Crew scheduling is a major issue for any airline. The basic problem in scheduling crews is minimizing credit time, which is the down time pilots and flight attendants must be paid for under FAA and union rules. Down time occurs when someone must wait around for the next flight in their itinerary. An ideal itinerary should take crew members from and return them to their home in an efficient series of flights with no layovers. Such a series of flights is called a pairing. A typical pairing might start in San Francisco, go to Dallas, then New York, Toronto, Detroit, and finally back to San Francisco.

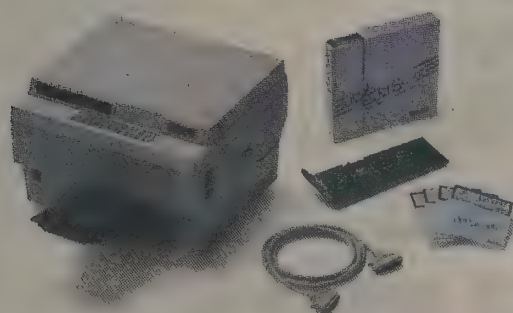
Every month, United must schedule the pairings for each crew, create lines of flying, which are all the pairings a crew flies in a month, marry the schedule to the previous month's, and put the schedule up for bid by the unions. Therefore, tight deadlines are always involved, and last-minute changes to routes can complicate things. For example, when an airline goes out of business, a regular occurrence these days, United may want to add new routes.

When you consider that United has 7500 pilots, 15,000 flight attendants, and 480 airplanes, you can see how crew scheduling can be a complex and compute-intensive application. United keeps its crew scheduling operation going twenty-four hours a day.

Even running the system twenty-four hours a day cannot produce ideal solutions to crew scheduling problems. "This is a problem that cannot be solved to an optimal solution in real time," says Stephan G. Regulinski, director of corporate research and development at United. Just scheduling flight attendants for United's narrow body

Continued

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- 3 megabytes RAM on-board for full-page 300 dpi graphics plus more than enough extra memory for additional downloadable fonts
- Uses 16Mhz 68000 processor
- Works great with Windows 3.0, Corel Draw, Ventura Publisher, PageMaker, WordPerfect, MS Word, Quattro Pro, dBase IV, Lotus version 3, Excel, PFS First Publisher and many more

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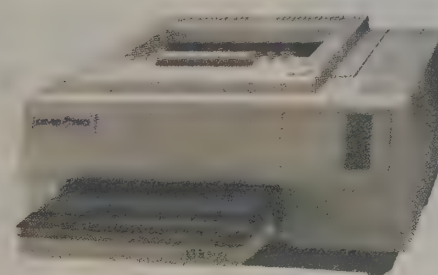
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If you've been waiting for just the right combination of speed, PostScript compatibility and price to buy a new laser printer, wait no more! The LX-29000 features the very latest RISC technology combined with a Canon LX engine and Microsoft's TrueImage for PostScript compatibility.

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- Automatic interface selection
- 2 megabytes RAM on-board
- Uses 4 ppm Canon LX engine - supplies are widely available
- Includes 35 resident typefaces and accepts all Type 1 and 3 fonts in addition to TrueType fonts
- HP LaserJet II emulation mode for non-PostScript printing
- Includes universal paper tray and toner cartridge
- Compatible with Windows 3.0 and Mac System 7 and any software that supports PostScript or TrueImage printing
- Optional accessories includes a 250-sheet paper feeder, envelope and legal size trays (see below)
- One year warranty on all parts and labor & free phone support

"Not only does this direct-mail printer carry the smallest price tag of the six printers we tested, but we found that it prints the cleanest text as well as sharp, smooth graphics. It handled documents full of EPS graphics and downloadable fonts perfectly, convincing us that TrueImage lives up to its billing for PostScript compatibility"
Publish Magazine, February 1992



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QMS-PS 810 with 3Mb

The QMS-PS 810 was rated the top (five star) printer by Publish Magazine in 1991! Based on renowned QMS technology, our Printer Works "Value Added" PS-810 represents an extraordinary value for a genuine Adobe PostScript machine.

- Uses standard Canon SX engine for 300 dpi and 8 ppm
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- Includes up-to-date Applications Guides for most Mac and PC software packages
- Emulates LaserJet+, Diablo 630, HP 7475A (HP-GL)
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Legal size paper tray \$59 Envelope tray \$79

PS-810 Turbo with 4Mb \$2195

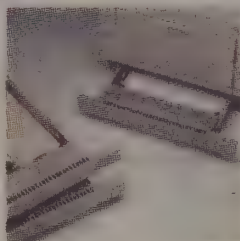
Same features as above but uses 20Mhz 68020 CPU for improved processing speed and includes a SCSI port for hard disk for extended font library. Includes 39 resident typefaces (adds Helvetica Condensed) and 4 Megabytes of RAM upgradeable to 8 Megabytes.

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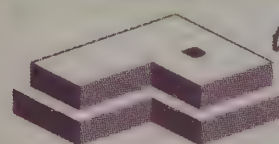


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- 286, 16MHz processor (Bravo 286/16)
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- Integrated Super VGA graphics
- Five 16-bit industry standard expansion slots
- Four drive bays (2-5.25" external; 2-3.5" internal)
- Two serial, one parallel, one mouse port
- Chassis lock
- Software

Bravo 486/25

- i486, 25MHz Processor
- 2MB RAM (Up to 16MB)

Bravo 386SX/20

- 386SX, 20MHz Processor
- 2MB RAM (Up to 16MB)

Bravo 286/16

- 286, 16MHz Processor
- 1MB RAM (Up to 16MB)



AST Premium® II Computers

PREMIUM II 486/33

Standard Configurations

- Intel i486DX, 33MHz processor
- 4MB RAM (expandable to 16MB on processor board; 80MB system total)

PREMIUM II 486SX/20

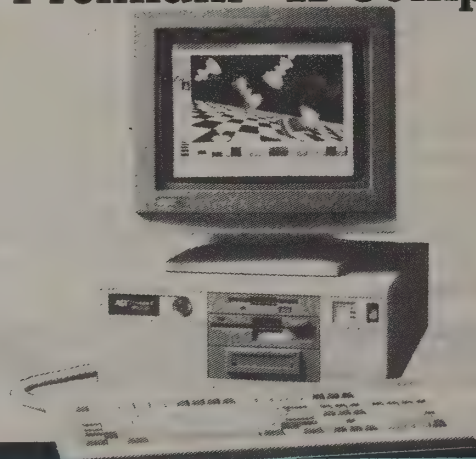
Standard Configurations

- Intel i486SX, 20MHz processor
- 4MB RAM (expandable to 16MB on processor board; 80MB system total)

PREMIUM II 386/33

Standard Configurations

- Intel 386DX, 33MHz processor
- 4MB RAM (expandable to 16MB on processor board; 80MB system total)
- 16KB Intel Smart Cache



Standard Configurations on All Models

- Integrated 16-bit Super VGA graphics adapter
- Six total industry standard expansion slots
 - Three Cupid-32/16/8-bit slots (one used by processor board)
 - Two 16/8-bit slots
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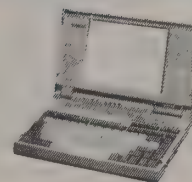
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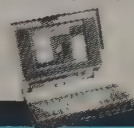
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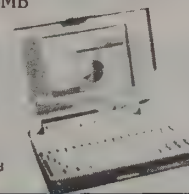


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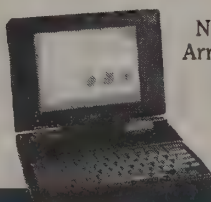
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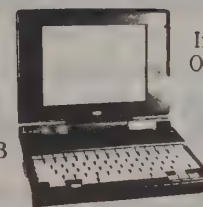


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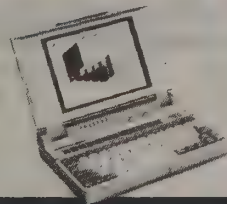
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- 2MB RAM (up to 6MB)
- 40/60/80MB HD
- 1.44/720K Floppy
- LCD VGA, 32 shades
- 1S/1P/1 VGA 1/Mouse/Expansion Bus
- DOS 4.01, Battery watch
- 5.7 lbs, 8.5" x 11" x 1.8"

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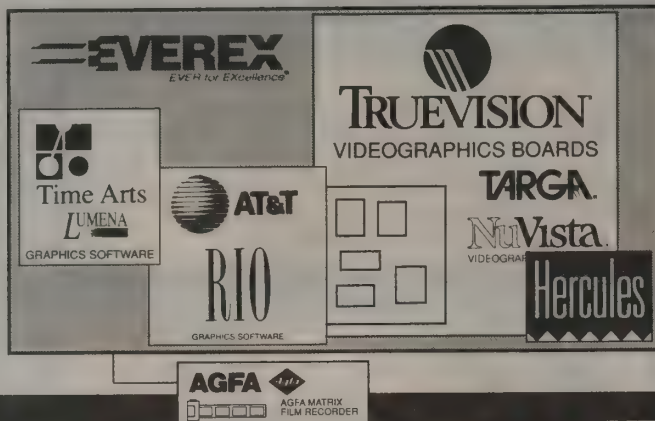
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aircraft alone has 10⁸¹ possibilities, Regulinski says. "That's CPU centuries to test all those feasible solutions," he says.

The more a problem is revised and worked on, the better the solution, but the deadlines are a little shorter than a few centuries. "The models that we use, like those that every other major airline uses, are designed to start with a solution and keep improving it. Basically, you improve it as long as you can until you run out of time and have to get on with the show," Regulinski explains.

So, to arrive at a good solution in the shortest time, you need as much processing power as possible.

SHOWTIME FOR UNIX

All crew scheduling was being done on an IBM 3090/600S mainframe, using up about a third of its processing capacity. To get the additional horsepower needed to provide better solutions to crew scheduling problems, United had to either use more of the mainframe's capacity, buy another mainframe, or develop an alternative solution. No more processing power could be devoted to crew scheduling, and additional mainframe capacity was too expensive. Drawing on their earlier experience with the Unisys/DEC system, the United management team decided to look at what UNIX workstations could offer them. They called for benchmarks from twelve UNIX vendors to see which could provide the raw processing power they were looking for at an affordable cost.

The symmetrical multiprocessing capabilities of Sili-

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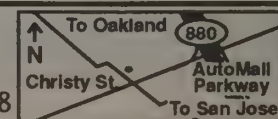
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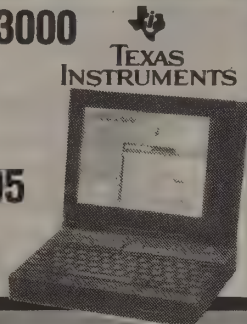
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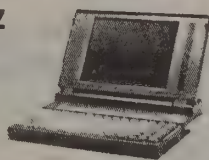
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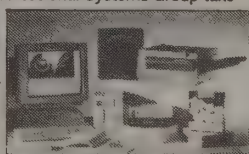
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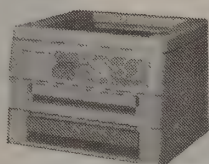
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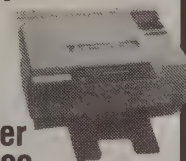


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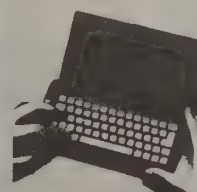
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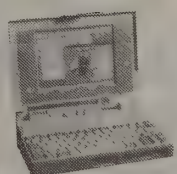


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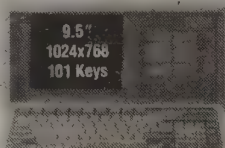
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con Graphics' Power Series RISC workstations ultimately won out over the competitors, offering the best price/performance value. For sheer power, others offered better performance, but at cost prohibitive prices. "The other parallel processing people were over a million bucks" says Regulinski. "That's getting back into the range of what it would cost to buy mainframe capacity."

United found that four parallel processor CPUs in a Silicon Graphics box could deliver a 2 1/2- to 3-time speed increase over one processor in scalar, not quite a linear improvement, but still ultimately faster. So they bought four of the Power Series machines, two with four processors and two with six. They added a fiber optic backbone, replaced their 3270-style dumb terminals with 52 MCD color X terminals, and hooked those up to seven IBM RISC System/6000s used as network servers and development servers. An IBM 3172 controller was used for 3090 connectivity. Total cost for this multivendor solution was about a million dollars, which compared very favorably to the cost of implementing a mainframe solution, Regulinski says.

GOING ONLINE

After finishing the port of the crew scheduling application over to the new machines, United was set to go online with the new system. In October of 1991, they began to transfer over different parts of the scheduling problem, ultimately shifting all domestic scheduling duties to the Silicon Graphics machines in January. The whole process went very smoothly.

"The cut over itself—we're talking about turning this thing on, making it go—was very, very smooth. People talk about open systems with the implication it is going to be easy to link this stuff together. While there were problems, but it was very easy," the R&D leader said.

And what about that bottom line? What has United got for its million-dollar investment? Surprisingly, says Regulinski, "It's hard to measure that. The problems solved vary from month to month. So there's no clean measure to say, 'Ahh, we're doing 10% better in our solutions.'"

"But, let's look at the other side, how much resource the user's getting, which was part of the problem we were trying to solve. Implementing this solution was not only cheaper than mainframe capacity, it also effectively gave them twice as much resources as they had access to on the mainframe. So in terms of providing resources, that's easy to measure: we about doubled their capacity."

In the long term, United will be able to calculate how much the new network saves them in credit time, and therefore dollars. But right now, they're satisfied with the cost-efficient power the system has already given them. ■

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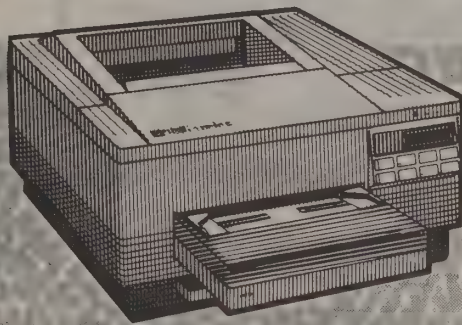
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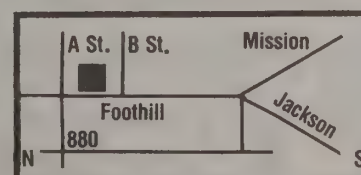
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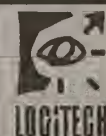
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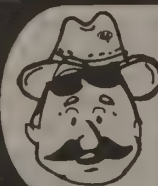
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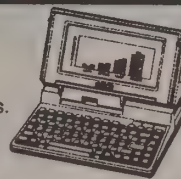
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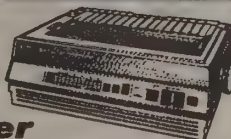
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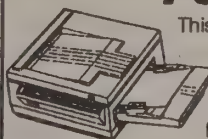
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Introduction To Perl

The Pragmatists' Grail

BY BENNETT FALK

On a normal day, it isn't hard to understand why there are so many different pieces of software in the world. After all, editing is not database management, sorting is not grepping, strings are not numbers, arithmetic is not spelling, and a great and mysterious divide separates binary from ASCII. On a normal day we need to perform lots of different operations on lots of different objects, and we have lots of specialized software tools to get these jobs done.

UNIX aficionados have always been proud of the diverse collection of utilities that make up the bulk of any UNIX installation. These tools anticipate most of any user's needs, and all that is required to use them is finding the tool in question and reading its manual pages. And if a single tool doesn't exactly fit the job, there are ample resources for the user to do some ad hoc integration, or in the worst case, write a new tool in C.

But not all days are normal, and even among the aficionados there is a visionary fringe. Some days you sit at your terminal and lament the missing integration that would free you from bouncing from shell scripts to Awk to C to get your work done. The notion of software tools is all well and good, the visionaries say, but why is there not one tool which binds everything else together and from which anything can be done? The Grail, the visionaries say, is a piece of software that would resolve the problem of having too many tools.

UNIX

The quest of the visionaries may well end with something like the perl language. The name "perl" is a tortured acronym for the Practical Extraction and Report Language. Perl is an interpreted language that contains a set of commands all its own and conventions for variable manipulation.

Programming in perl is like writing scripts for awk or for the UNIX shells. Perl scripts can freely access UNIX files and directories in much the same way that shell scripts and interactive users do. But perl also offers an interface to many of the functions in the standard C libraries and it can be linked with other libraries to provide an interface between perl and commercial software applications.

Like any Grail worthy of the name, perl is freely available in source code form. The only cost is the time you invest in downloading it and the telephone charges you incur accessing the site that has the perl distribution kit. On top of all that, the authors of perl and its documentation have a sense of humor.

WHAT IS IT GOOD FOR, REALLY?

Learning perl and learning what to do with perl are open-ended tasks. There is not much that perl cannot do, and consequently, figuring out what to use it for can be a challenge.

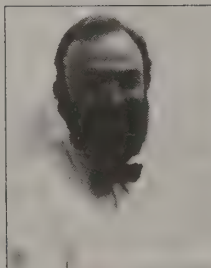
Originally, perl was intended to be a "data reduction tool," a report writer. As such, it featured excellent facilities for dealing with the contents of files. It contained a superset of the UNIX regular expression syntax and the ability to define output formats. In addition, perl supports both numeric and string datatypes, single-value variables

(scalars), arrays, and associative arrays. What sets perl apart from other UNIX programs that have similar capabilities is the absence of limits. Unlike other UNIX utilities, perl is capable of processing arbitrarily long lines of input, and it is capable of handling both ASCII and binary file contents.

As perl developed, the core features were enhanced with facilities that went beyond simply working with the contents of a file. Perl became a tool for manipulating files and directories themselves. Perl contains an interface to the low-level system calls that manipulate files and directories, so the programmer can open and manipulate as many files as the system will allow for one process. Another layer of features (access to UNIX signals and alarms, the ability to fork a child process, access to system information about processes) makes perl useful for managing processes on a single machine or throughout a network. All of these things make perl an attractive tool for system and network administrators.

When run in an environment that supports socket-based networking, perl provides an interface to the system-supplied routines for

Learning perl and learning what to do with it are open-ended tasks. There is not much that perl cannot do; consequently, figuring out what to use it for can be a challenge.



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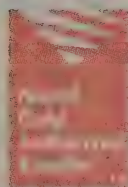
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working with sockets. Consequently, client/server architecture can be implemented in perl just about anywhere it is needed.

A SHORT, DUMB EXAMPLE

Among the sample programs provided are perl versions of standard UNIX utilities like cat, who, and fmt.

The cat program is a good example. The perl version of cat is a five-line program in a file named "cat.pl." It is executed just like the UNIX utility:

```
cat.pl file1 file2 file3
```

Like the UNIX utility, cat.pl displays the contents of the filenames that appear on the command line.

The contents of cat.pl are as follows:

```
#!/usr/bin/perl
while ( <ARGV> )
{
    print $_;
}
```

The first line indicates to the UNIX C shell that the program that follows should be interpreted by "perl" which resides (in this case) in the /usr/bin directory. The rest of the program consists of statements meaningful to perl.

The cat.pl script illustrates some features of perl's syntax. The dollar sign is used to introduce variable names. (Array names are intro-

duced by "@.") As in C, statements are terminated with semi-colons.

The while statement does just what you would imagine a while statement would do: while the condition stated in parens is true, the statements enclosed in the following curly brackets will be executed.

"<ARGV>" is a construction unique to perl for processing the words that appear on the command line. In this form, it treats the arguments to the cat.pl command as filenames and reads each file line by line.

As perl reads its input, the contents of the current line are stored in a variable named "\$_" (similar to the "\$0" variable in awk). In the case of cat.pl, the input is simply copied to perl's output, and the statement "print \$_" does this for each line read.

Rewriting cat as a perl script is no big deal. What is a big deal is how easily the perl script can be modified.

For example, common UNIX communications utilities like tip and cu use cat for downloading and uploading files. This is an error-prone operation, particularly if high-speed modems are being used: cat delivers its output at a speed that overwhelms the receiving port or modem. One practical solution for this is to slow down the cat program by forcing it to sleep at some regular interval. The perl script for a version of cat that sleeps one second after every ten lines are transferred looks like this:

```
#!/usr/bin/perl
$I = 0;
while ( <ARGV> )
{
    print $_;
    $I++;
    if ($I % 10 == 0)
    {
        sleep 1;
    }
}
```

Like variables in shell scripts, variables in perl need not be declared. Simply assigning a value to a name is declaration enough. Because perl's data classification is so flexible, it is unconcerned with pointers.

DOWNLOADING AND BUILDING PERL

Perl comes in kit form. It is available to any Internet site via anonymous FTP and to non-Internet sites via anonymous uucp. For more information about getting perl, see the *Programming Perl* book referenced below or look in on the comp.lang.perl newsgroup on Usenet.

The source code requires between 2 and 3MB of disk space, and will have to be compiled to produce anything usable. It is

Perl scripts can freely access UNIX files and directories in much the same way that shell scripts and interactive users do. But perl also offers an interface to many of the functions in the standard C libraries, and it can be linked with other libraries to provide an interface between perl and commercial software applications.

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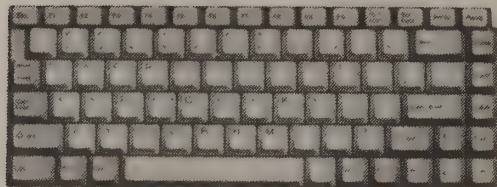
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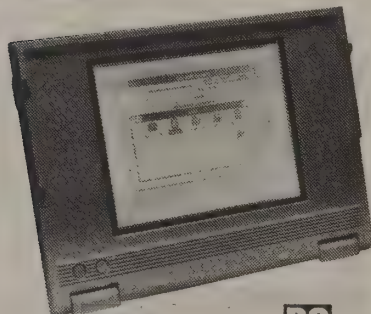
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probably not a good idea to circumvent building perl on the machine where it will be used. Perl needs to know quite a bit about the environment in which it runs.

Building perl is not as much of a chore as you might think. There is a README file that explains the procedure. By all means, read the README file. The business of adapting perl to the environment in which it must run is handled by a long shell script named Configure. Running Configure may take as long as ten minutes; this is time well spent. Configure keeps up a running commentary on what it is doing and what facilities it finds in the local environment.

Configure adjusts several of the perl header files and produces "make" files that should be adequate for the environment in which it is being run. Running "make" to build the final product takes another ten minutes or so. On a Sun-3 the whole procedure ran flawlessly.

DOCUMENTATION

Perl is heavily documented. The manual entry provided in the source code distribution is over one hundred pages long when formatted with nroff. The manual is helpful, but the example programs are probably the most useful way to learn perl.

The book *Programming Perl* by Larry Wall and Randal L. Schwartz is available from O'Reilly & Associates; it's an excellent way to get acclimated to perl. (Larry Wall is the principal architect of the language). The book features a tutorial description of the language, a discussion of perl's features, a section including sample perl programs, a "recipe" section that discusses how to do various things using perl (including printing a file upside down), and an interesting troubleshooting guide. Like the language itself, *Programming Perl* is a sprawling, comfortable thing that invites the reader to learn by browsing. The quick reference card (sixteen smallish pages) accompanying the book is very helpful.

Of course, not everyone will understand the Grail-like qualities of perl. It is, after all, a tool, something that must be used to be of any benefit, and its usage still has to be learned. It is not the sort of thing that improves the quality of life by its very existence, but for the people who see the possibility of working with fewer tools, it is Grail enough. ■

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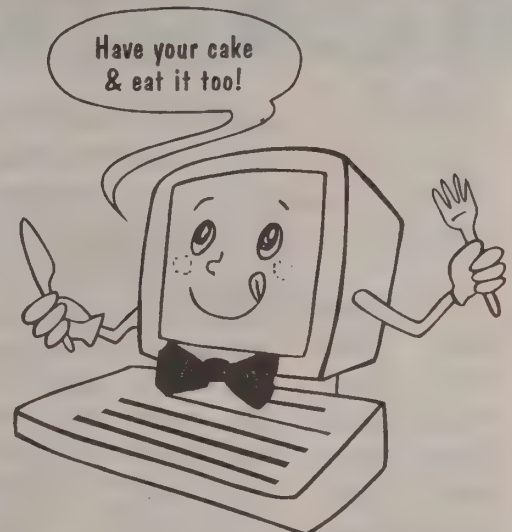
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BY WAYNE A. YACCO

I just read the results of WordPerfect's \$25,000 contest, the object of which was to guess the number of copies of WordPerfect for Windows that would ship within the first thirty days. Guesses ranged as high as 910,620,044; WordPerfect actually shipped over 369,000 copies. But oddly enough, according to WordPerfect, the lowest entry was zero. I wonder if anyone noticed a small, nearly middle-aged guy dressed like a college student putting that entry in the box. Come on, Bill, you knew zero was wishful thinking.

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One company with a couple of great new Mac products at MacWorld was Goldstein & Blair. They're expanding *The Macintosh Bible* into a whole line of books. *The Macintosh Bible Guide to System 7* has several sections that are applicable to LAN installation and use. *The Dead Mac Scrolls* (or, *The Macintosh Bible Guide to Saving a Fortune on Mac Repairs*) is one that absolutely every Mac LAN manager will want to have handy, and every Mac user will want as a resource. It's a reference, not a how-to book, but it includes hundreds of repairs, from simple to solder. Some, anyone can do. The rest, anyone can learn to do with a little help. (Author Larry Pina suggests some of his other books that do lead you through the basics.) If you have some experience, and a few tools, you'll be able to do all of it.

Of course, the biggest savings are gained by board-level repairs. It's hard not to come out ahead when you replace a 50-cent resistor instead of a \$500 logic board. This book is full of such tips, and each describes not only appropriate symptoms, but a cross reference to other possible causes.

Then again, the wrong soldering iron can cook a board beyond repair. Beginners need either guidance or a bucket of guts to work at this level.

Even if you only want to do simple repairs like replacing the fuser-roller-cleaner felt in your LaserWriter, this book has a big advantage. It consolidates all the maintenance tips for printers, drives, monitors, and systems into one handy volume. Easy access to everything in one place makes information much easier to use. It only lacks one thing, really—an on-line version.

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LOCAL AREA NETWORKS

ogy, the Carry I miniature PC is not wishful thinking. Although it takes up very little desktop real estate, and moves easily between offices, the Carry I has the features of a real workstation. It's a 386SX computer with a slot; 2 or 4 megs of RAM; a 40, 80, or 120MB IDE hard drive; a 1.44MB floppy; two serial ports; one parallel port; and on-board super VGA (with its own 512KB of dual-ported video RAM). The latest version of DR DOS 6.0—with which it comes bundled—can effectively double its hard-disk storage using compression.

The 5lb. Carry I has a little of everything: a little monitor, a little laptop-style keyboard, and a little system box. Flytech calls it a "book-sized" computer. Everything but the monitor fits into a soft carrying case that's included. And with its vertical stand, the Carry I truly does have a very nearly zero footprint. You can put a lot of them into very little space. Or put them into any space with more of everything else. For more demanding applications, Flytech plans to ship an i486-based version in February. The \$2000 unit will be extremely expandable: up to 32MB of RAM and a removeable 2.5" hard disk (40MB to 120MB per module).

The Japanese use laptops on the desktop to maximize scarce space, and with a parallel-port LAN adapter from Xircom, IQ Technologies, and others, laptops could serve as workstations too. The big drawback is a lack of color, which can only be had by adding about a ton of money to a portable's 8- or 10lb. weight.

Admittedly, the Carry I's 10" color monitor is far less portable than a laptop display—even though it's shipped in a box with a handle. It is small enough to be moved easily, however. And as small and light as it is, it has a top resolution of 1024x768 (interlaced) and a very fine .26 dot pitch. That's light years beyond any laptop display, including active-matrix color models.

Incidentally, I mentioned the space-saving nature of the Carry I keyboard a while back, but didn't know if they were sold separately. They are. It's an 81-key miniature keyboard with full-size key caps and standard spacing.



Copyright © 1992 by Wayne A. Yacco. All rights reserved. An editor, writer, and consultant specializing in microcomputers and their business applications, Wayne Yacco writes articles, columns, and reviews for many trade and business publications. He can be reached at Box 269, Burbank, CA 91503.

The Japanese use laptops on the desktop to maximize scarce space, and with a parallel-port LAN adapter, laptops could serve as workstations too.



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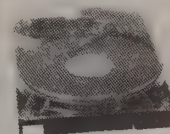
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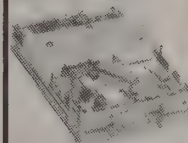


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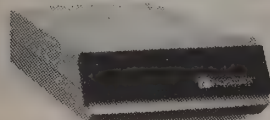
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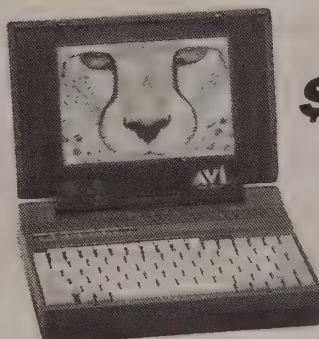


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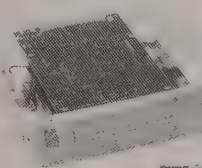
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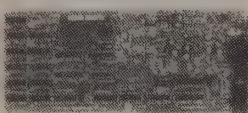
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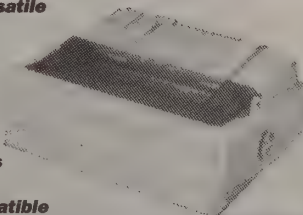


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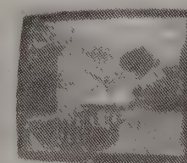


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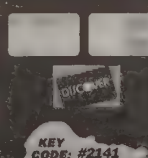


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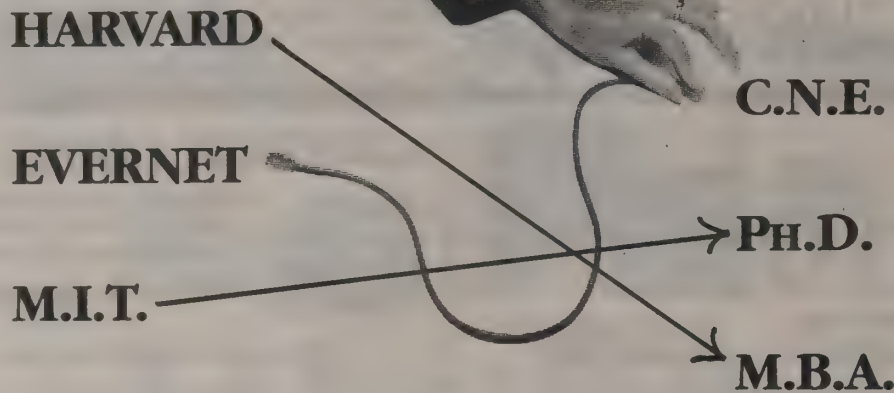
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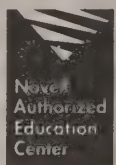
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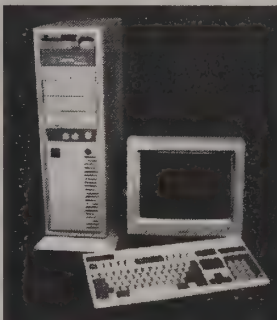
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XT/AT Compaticard IV, 4 Dr, Co-Exist	115
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RLL 16Bit 1100-SR4, 4FD/2HD, 1:1	69
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386SX-16 C&T ECS, 0K to 32MB, 8 slots, AMI 186	
386SX-20 C&T ECS, 0K to 32MB, 8 slots, AMI 220	
386SX-25 OPTI, 0K to 16MB, 8 slots, AMI	185
386DX-25 Non-Cache, 0K, AMI BIOS	272
386DX-33 64K Cache, C&T, AMI BIOS	339
386DX-40 64K Cache, GEN, AMI BIOS	398
486DX-33 64K Cache, GEN, AMI BIOS	672
486DX-33 256K Cache, GEN, AMI BIOS	726
486DX-50 64K Cache, GEN, AMI BIOS	1083
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NeXT In The Real World

Part II Of The MicroTimes Interview With Steve Jobs • By John Perry Barlow

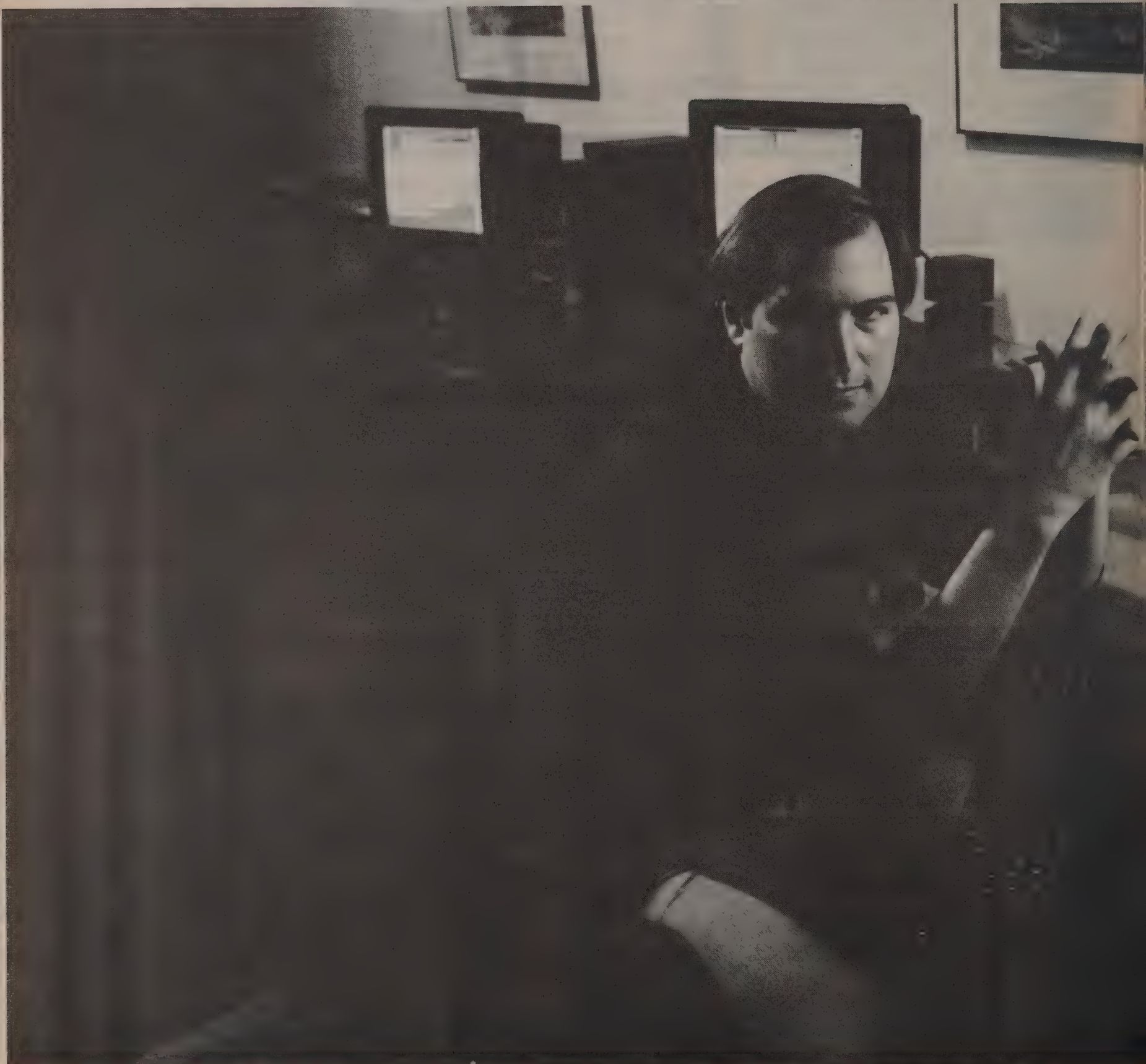
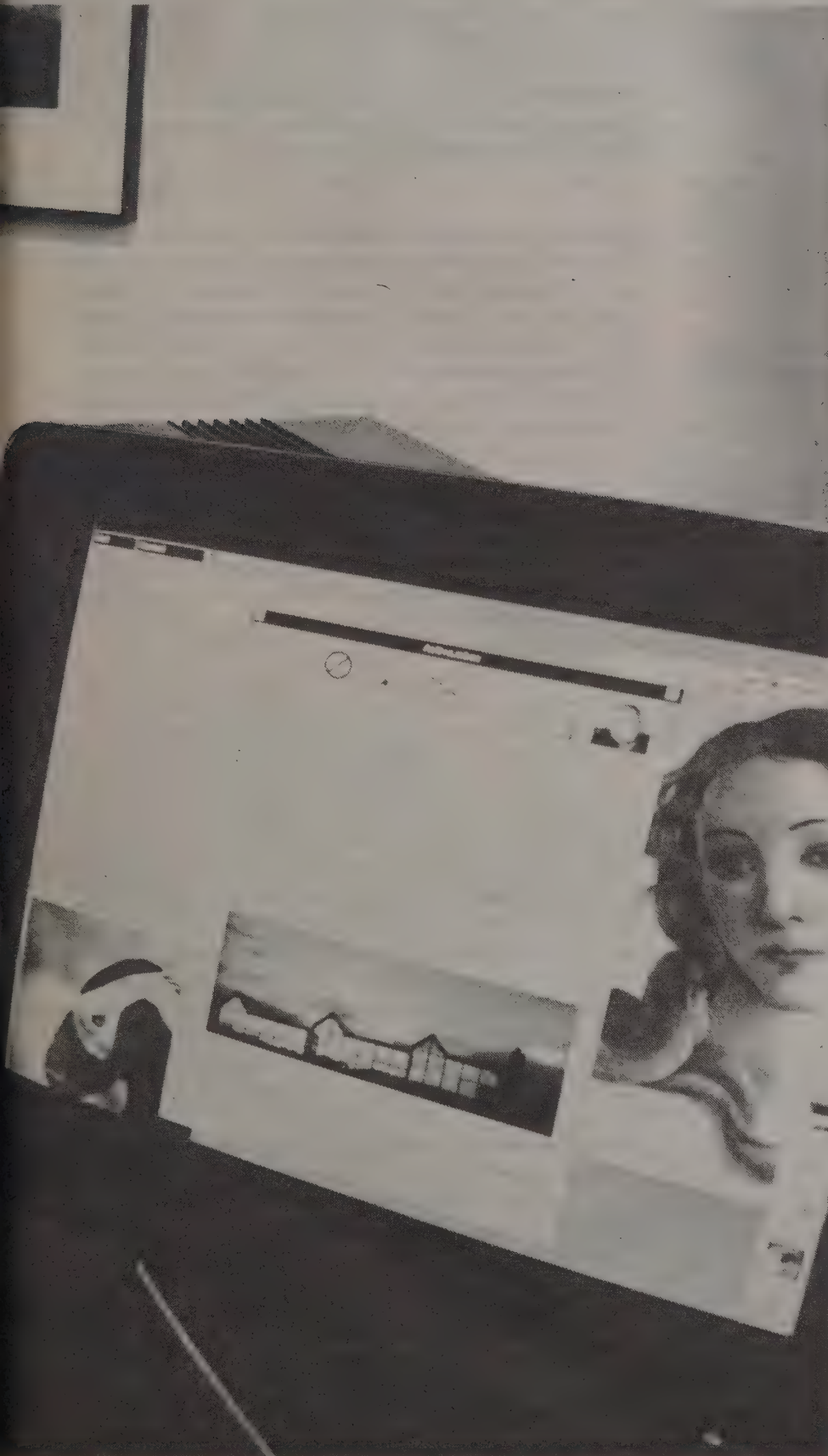


PHOTO: T. McCARTHY



EVERYTHING IS CHANGING ALL THE TIME.

At that point in early December when I had the following conversation with Steve Jobs (the first half of which was published in *MicroTimes* last month), the world around NeXT looked different to me in a lot of subtle ways.

For one thing, I was still somewhat unpersuaded that their bold, new marketing plan—selling NeXTstep as an environment for developing custom applications—wasn't yet another way to shovel smoke. After all, NeXT has had, depending on how you count 'em, at least five bold, new marketing plans over its existence, each touted with equal fervor, and each more ineffectual than the last.

Then there was Jobs himself, who, in his actions leading up to this conversation, seemed as compulsively elusive and manipulative as he is sometimes reputed to be.

But I'm writing these words toward the end of January, in the immediate afterglow of NeXTworld Expo. During the course of this event, a couple of things became clear to me.

NeXT is going to make it, and possibly make it big

Their perceived new market actually does exist, and, more to the point, it knows that *they* exist. NeXTworld was crawling with sober, suited individuals who gave no appearance of being there on some kind of cyber-cultural lark. In evidence were all the warning signs of MIS. While my own personal enthusiasm for their arrival was restrained by my blind prejudice against suits, they're like the 7th Cavalry as far as NeXT is concerned.

Furthermore, assuming that their port of NeXTstep to the Intel architecture really does work as seamlessly as it appears to, they may be able to grab a commanding lead in the Operating System of the Future contest before the systems heretofore regarded as the Real Contenders—Big Pink, Windows NT, and Solaris—have condensed out of their current vapors.

In general, NeXTworld, and the product announcements it showcased, made NeXT seem like a much more credible and mature company than the kind of company which might, for example, actually expect to sell computers without floppy disk drives.

There is, once again, a New Steve Jobs

Over the course of his career, this shape-changer has gone through more metamorphic revisions than one generally achieves outside the insect kingdom, but he has finally entered one in which he is starting to look comfortable.

His two-and-a-half-hour presentation at NeXTworld still contained some auto-Barnumizing. At one point, the respected Mac pundit in the seat next to mine muttered, "If this guy had been born in Alabama, he would have been bigger than Swaggart." And I didn't have to ask him what he meant by that.

And yet... And yet what amounted to the third NeXT product introduction contained little of the Wagnernian theatricality which caused the first two to feel less like a computer intro than Albert Speer's staging for the Rally at Nuremburg. This time, there was a lot

more steak than sizzle. Jobs was calm, relaxed, conversational. He didn't appear to be hiding much behind the glitz of his presentation.

The products themselves were certainly meat and potatoes. There was v3.0 of NeXTstep, which contained advanced abilities for transparent group endeavors over EtherTalk and Novell networks, a highly adaptable database tool kit, 3-D modeling support based on Pixar's Renderman, and system integrated ISDN so that one's NeXT at home could feel part of the office network, even though connected to it by nothing but standard copper phone cabling. There were many other incremental improvements too small to detail here, which will nonetheless solidly enhance the already well integrated NeXT working environment.

He also introduced a great and inexpensive (\$3500) color printer using PostScript 2 and Pantone colors, a 40% increase in hardware performance (with a 33MHz '040 CPU) at no additional cost, and a new CD-ROM drive to be used, among other purposes, for loading the new system software. All pretty prosaic stuff by NeXT standards, but, well, grown up.

Which is pretty much how this new Steve Jobs comes across. He is, after all, a brand new father, a condition which usually stimulates the maturity glands. On the second day of NeXTworld, Jobs spent the afternoon wandering the show floor, openly available to anyone who sought his ordinarily hard-gained company. He was amiable and engaged. And obviously very happy with the way things were going.

Though this conversation took place much earlier, some of that genuine confidence is in evidence here.

With the greatest reluctance, I recently ordered a Power-Book 170. I hated to do that, since my Macintosh has been

NeXTworld was crawling with sober, suited individuals who gave no appearance of being there on some kind of cyber-cultural lark. In evidence were all the warning signs of MIS. While my own personal enthusiasm for their arrival was restrained by my blind prejudice against suits, they're like the 7th Cavalry as far as NeXT is concerned.

reduced to being sort of a dedicated QuickDex server, but my NeXT...

But you need a portable.

Exactly. Can you give me any sense of where we stand there?

I can. Stay tuned. We're working on some stuff in the lab. There are a few directions we're going in.

What most of our customers tell us is that they don't need it to run on batteries, they just need it to be really transportable.

Just transportable. That's how I feel.

That's pretty much our philosophy right now. There are a lot of things that are the enemy of running on batteries, like a big screen. Like a bigger hard disk that uses more power. Like a faster CPU that uses more power. Things like that.

So what our customers are telling us is that they want to be mobile, but they can live tethered to a 110V outlet.

Let me shift to connectivity and standards for connectivity. I'm concerned that the market doesn't realize the extent to which you're already meeting standards.

I agree.

I mean this looks like a good document [referring to a PR document about NeXT and standards], but I get skeptical questions about this every day. For example, I hear things like: "Objective C is a dead language, regardless of its merits. NeXT has bet on Objective C." Or they'll say, "NeXT Berkeley UNIX is not exactly parallel to Sun Berkeley UNIX." I haven't run across anything that won't compile yet, but I hear these things... Is this all just idle slander and gossip, or is there something to it?

The two biggest things you hear in the industry are "which chip are you using?" and "which version of UNIX do you have?" Then there are minor ones beyond that.

And my view is that these are the battlegrounds of five years ago. It really mattered what chip you used five years ago. It really mattered what version of UNIX you had five years ago. Those things are not the battlegrounds of today.

When you write an application for NeXT, 5% of what you see is UNIX. Ninety-five percent of what you see is NeXTstep. Open/close, read/write commands are the same in every version of UNIX, and that's about all you see in NeXTstep. So it doesn't matter what version of UNIX you're running any more, and it doesn't matter what chip it's running on. NeXTstep's running on several processors right now. What matters is, what does the application developer see? What's your application development environment?

This is my point of view. You couldn't even tell me what operating system Macintosh used, right? So I guess to me the people that are worried about these things... well, they don't seem to be the customers, because we don't run into these problems with customers at all. And if we do, we have them talk to a technical person for a few hours and their concerns evaporate. It seems to be people on the sidelines who have these five-year-old ideas stuck in their brain. Their light bulb hasn't gone on, in terms of what's really important today.

I think you may be fundamentally right about the irrelevance of these distinctions, but as you have seen many times, there's an amazing willingness in the computer industry to adhere to blind fashion.

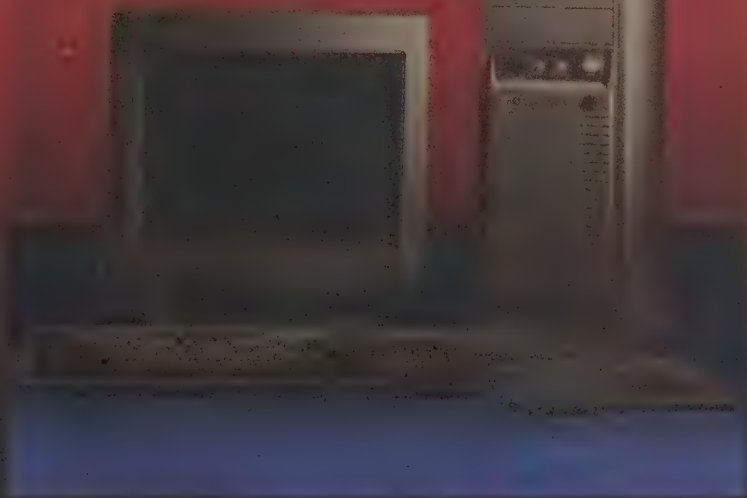
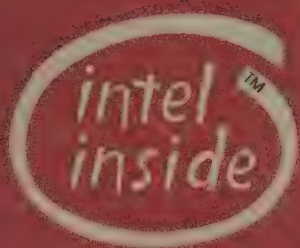
But see, that's not who our customers are going to be. Our customers are going to be early adopter corporate and government workstation customers. And we shouldn't spend our time trying to persuade every last person that we're using the right chip or that we're using the right version of UNIX. What we should do is go with those early adopter customers who can grow our company to a half-a-billion to a billion-dollar company, and let our success demonstrate that those issues don't matter any more.

Continued

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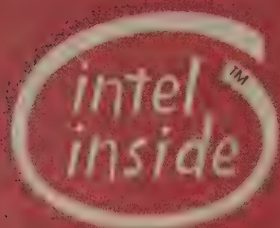
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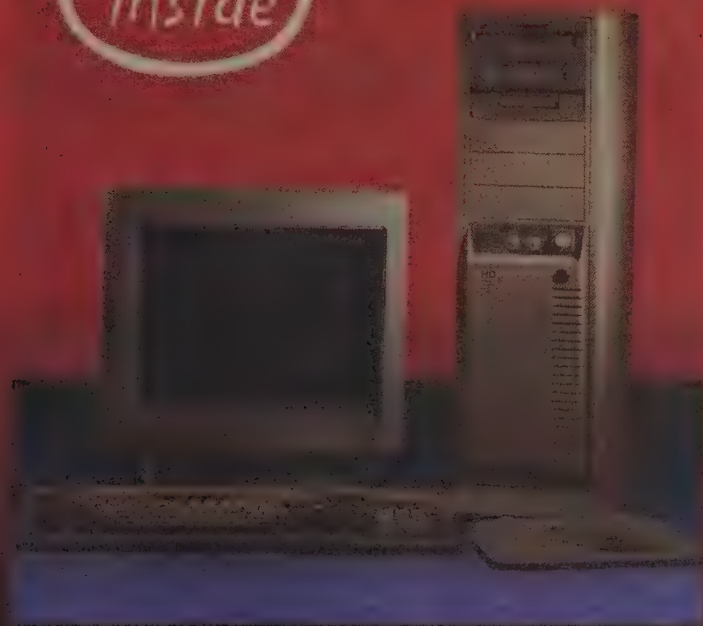
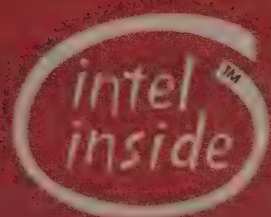
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Why? Because what do you buy a Sun for? To develop custom apps on. NeXT can do it five to ten times better. So we're winning right and left. Not in the scientific and engineering world—we don't know anything about that. But in the commercial and government arena, we're winning right and left.

I worry about things like this, though. [Waving a copy of Networking Today at him.] There's an article in here called something like "Will UNIX ever succeed on the desktop?" They are basically telling their readers in corporate networking to wait for whatever comes out of Big Pink and Solaris, because that's what you've got to have. And they're touting all the virtues that will be derived from Solaris and

Jobs: "The two biggest things you hear in the industry are 'which chip are you using?' and 'which version of UNIX do you have?' My view is that these are the battlegrounds of five years ago. It really mattered what chip you used five years ago. It really mattered what version of UNIX you had five years ago. Those things are not the battlegrounds of today."

Big Pink someday, and not saying anything about NeXTstep, which is shipping with them now.

Give me that magazine. We'll call them up. *[Grabs magazine and reads the whole thing in about 15 seconds.]*

I was alarmed by this. Because this is really your market, in many respects, and they don't know that you exist.

Well, this magazine doesn't know that we exist. But our market is starting to hear about us. But we'll call these guys up. This is wonderful. We'll fix it.

But to get back to the chip issues, I was on a plane recently with one of Intel's main men. He said, "You ever see Steve Jobs?" I told him about this interview coming up and he said, "Well, I would be appreciative if he would come around and pay us a visit. We've got something that he really ought to be using."

What is that?

A chip under development.

The 586. Yeah. Sure. Intel's over here once every month talking to us about that. We knew about the 586 a long time ago.

Well, I knew you knew about it, but apparently he doesn't realize there's been this kind of conversation.

[Intel CEO] Andy Grove and I have known each other for fifteen years. And we talk a lot. We're very aware of that stuff.

I think a lot of people are concerned that CISC chips in general have reached a point where they can't go much further.

Well, the 586 is a CISC chip, for the most part. It's sort of a combination. So's the '040. They're all combinations. The RISC/CISC stuff is 90% marketing and 10% reality.

I think we evaluate things on one simple benchmark—how fast is it? I don't care if it's a little hamster in there on a treadmill—how fast is it?

So far you're running faster than most garden-variety SPARCstations.

Well, and you'll see us very shortly catch up with SPARCstation 2's. Very shortly. So the '040 is a fine chip. It runs as fast as the SPARC stuff. Yes, there are faster chips, and you'll see us do things with other processors in the future. But they'll all run NeXTstep.

How do you deal with something like the Indigo? I gather that that's now a sort of orthogonal consideration.

We never see the Indigo out competing in the real world. We've never seen the Indigo in one corporate account, competing. I think the Indigo's selling to [SGI's] traditional base.

Right. The SIGGRAPH types.

The 3-D modeling types. Yeah.

Which is another question I've got. You've got a relationship with Pixar—

Right.

And I keep thinking that there's an obvious tie-in at some point along the line. Not just for professional 3-D graphics. It seems like the interfaces themselves are getting increasingly three-dimensional.

I agree with you. Our NeXTstep release 3.0—which is going to ship in March or April—is going to come bundled with several things. One is our DBkit, our database kit. Another is Novell client support, so you can hook up to any Novell network and automatically map that right into the UNIX filesystem. Ethertalk, which we've written ourselves, so you can just hook it right up to an Ethertalk network and we map that all into UNIX—nobody's ever done these things before, by the way.

That all comes in the box.

Another thing that comes in the box is Renderman. Photorealistic Renderman is bundled.

With an interface?

Well, let me keep going. Photorealistic Renderman is bundled, so that you can use it to do photorealistic rendering, the same thing you pay a lot of money for on other platforms. We've got all the printing and everything working with it, so you don't have to think about that, which is something nobody else has done.

But we did something else that's quite nice. As you recall, when we did the Mac we had QuickDraw for the screen and PostScript for the printer, and that was a real problem.

It continues to be.

It continues to be. So when we did NeXT, we adopted a unified imaging model for 2-D geometric graphics in PostScript. That solved an enormous number of problems. One of the biggest problems it solved was that it saved developers months of time, because they don't have to translate between one and the other and read these two big, thick manuals to get something to print.

Well, the same sort of dichotomy exists in the 3-D marketplace. You can have PHIGS for interactive graphics, or GL. But these are very primitive standards. You should be able to do better than those now, but in the future it gets worse. Because ten years from now we'll have the CPU performance to run photorealistic Renderman in real time. So during that ten years we want to incrementally get better.

Well, PHIGS and GL and that stuff will not get better. The architectures are not going to get much better. So you're going to have to throw them out and get better 3-D packages a few times during the '90s, and every time you throw the package out you throw all your apps out.

So we thought, what would be the right solution? The right solution

Jobs: "It doesn't matter what version of UNIX you're running any more, and it doesn't matter what chip it's running on. NeXTstep's running on several processors right now. What matters is, what does the application developer see? What's your application development environment?"

would be to have an interactive Renderman, and then as the '90s progressed, leave a few more of the switches on that can run in real time, until eventually all of the switches are on. So we went to Pixar just like we went to Adobe, and we worked with them to create an interactive Renderman, and it's bundled with 3.0. It's wireframe on the 040s, and it gets more interesting on other products.

That's not modelers. We're not going to write a modeler, because we don't want to compete with the third parties. But all the underpinnings are there to do some wonderful things in 3-D in the next few years.

Let me talk to you a little about multimedia. I just interviewed John Sculley. He talked about Kaleida and their intention to develop a set of authoring and architectural standards that anybody could plug into.

Uh-huh. But see, standards are actually developed.

Well, I understand that...

Like fifty million CD players shipped. That's a pretty compelling standard. MPEG is a pretty compelling standard.

But there are also twenty-four different formats that a multimedia author could choose to publish in at the moment, which divides up a pretty small market.

Oh, I agree with that. But the actual data representations are chosen more by the consumer products industry than they are by the computer industry. MPEG is an example. It's going to be a pretty compelling video format.

This gets us to something I wanted to ask you about—I'd still like to see that compression chip on the NeXT dimension board.

Well, as you know, C-Cube conked out. We now have the boards—the hardware boards are done, and they've given them to our software group, and as soon as they get some software up on them, you'll see it as a product. But we have some much more exciting stuff than that in the lab. We'll do all of it.

I actually think the QuickTime stuff is not a bad idea, but the implementation is very poor.

It's trying to do too much in software on a machine that doesn't have the juice to do it.

Or they took the wrong software algorithmic approach on it entirely.

That maybe. Well, would you be willing to support something like QuickTime?

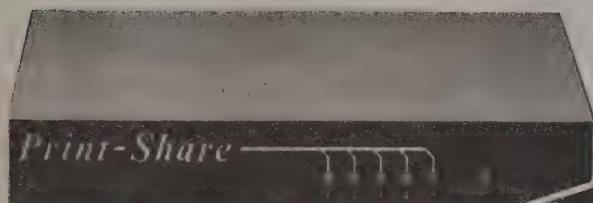
QuickTime will never reach the kind of quality that people are going to look for. The algorithms of implementation are fundamentally flawed. The concept of having an open system like that is something we support entirely—as a matter of fact many people have come to us asking us to license some of our existing multimedia technology, and in almost every case we do. Sun's sound compression formats are the same as our current ones, although we're rolling in a new one for 3.0. We found a way to compress CD sound to data rates that are Codec data rate. Imperceptibly. You can take stereo CD sound, compress it down to Codec data rates, and you can't tell the difference. It's a wonderful thing. It's never been done before, all in software.

We unified all our sound formats into one format. We don't need all those different quality level ones now, because our best quality now has the data rate of our lowest quality one. So we're unifying all that into one format, which is going to simplify our lives enormously. We'll be willing to license that, as we have a lot of others.

I think you're going to see video over the Net fairly soon, and it's probably going to be in a QuickTime format, to start out with. I mean, if all you're trying to do is get a video box to pop out of your email, you're willing to suffer some crudity.

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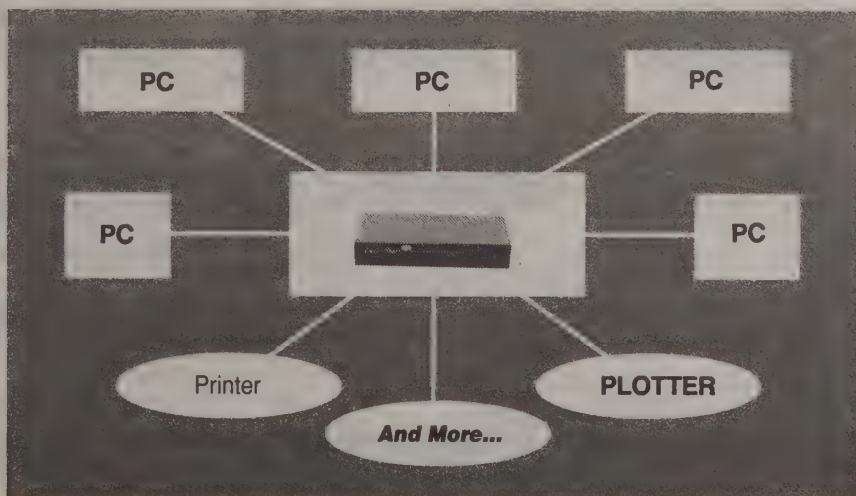
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Unless you can have something quite a bit better.

Yeah. If you can have something quite a bit better that you can actually communicate with somebody else on...

Well, right now QuickTime only runs on the Mac, so it's the same problem.

Right. But there are a lot of Macs out there.

Sure there are.

Of course, if your vision is achieved, there'll be a lot of NeXTs out there.

We're going to be willing to license our stuff in the same way, and my guess is it'll be substantially higher quality.

Well, it is now, for whatever that's worth. What I can do with a video camera and a NeXT dimension board, even without the compression chip, is pretty extraordinary.

Just wait.

This relates to a problem I have with NeXTmail. I love NeXTmail, but I constantly feel like I've got a great operating voice in the country of the deaf. I want to be able to commu-

nicate with everybody in NeXTmail, but I can't. For example, I have no ability to communicate with people on Sun workstations...

Well, you do with text.

I do with text, but I want more.

But see, Sun can't play the music. And Sun can't open the Improv files. So what else do you hope to do?

If we could change the file format around, let's say we could instantly change it to whatever you want, what would you do with the information once you got it to your Sun?

Well, I would hope that there would be some joint effort between companies like Sun and NeXT, to find a lingua franca.

We are open to that.

Perhaps something like Carousel, Adobe's new document description language...

Oh, of course we will support that. That's just a subset of PostScript, so we'll be the first company to support that, because we already do.

We've held out the olive branch to Sun and said we'd love to work together with them on this stuff. So go ask them.

You're a brand-new father.

Yeah.

When that happened to me, it redefined my whole sense of purpose in life. What is your mission now, in the broad sense of the word?

What is my mission?

What kind of world do you want to help create for your kid?

I have felt for most of my adult life that I'm a tool-builder. The things I have chosen to build are not things that can be done by a sole artist. That's a wonderful thing—many times I am envious of people that have chosen those paths, because one can be a perfectionist and have complete control of something yourself.

But what I've chosen to do requires the efforts of hundreds, if not thousands, of people. So I consider myself the tool-builder that works with a large team of people to build tools.

I've been through a few generations of tools in my adult life—the Apple II, the Macintosh, and some in between that didn't work out so well. This is our third generation of tool.

And unlike a lot of people who think the computer industry's maturing, I think it's in its infancy. I think there are technological breakthroughs that happen once every ten years, maybe. Sometimes a little more frequent, but not too much. And that those technological breakthroughs have the force to reshape the tools that we build, and to reshape the industry along with them, as certain companies pay attention to them earlier and certain companies wake up fairly late.

So my mission right now is to try to help seize these new technological breakthroughs that we've had, and to steer them right, into some wonderful tools for people to use. Sort of the third generation of tools out there, the first being the character mode PCs, the Apple II, and then the IBM PC. The second being the graphical, pretty much standalone computers, like Macintosh and now Windows. And the third being these highly networked environments where expressing your desire in a custom app is going to be a lot less painful than it's ever been before. And these things interoperating together.

I don't even fully understand it yet, just like we didn't fully understand Mac in 1984. But you get the feeling, and you recognize it after it's happened a few times, that you're on to something really big.

And that's how I feel right now.

So our goal is to try to fashion this stuff into the most wonderful tools we can. And then to listen to the people using them—maybe more than we have in the past—to let them help us.

That's what we're trying to do. We'll see where it goes. ■

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- 16MB 60ns RAM expandable to 32MB onboard
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- Tower Case w/10 drive bays/digital display/275W P/S
- MS.DOS 5.0

Hard Disk Mirroring eliminates the need for back-ups and protects data. The system automatically switches to the second hard drive containing identical data as on the first drive, in the event of hard disk failure.



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386-25 (Symphony) upgradable to 33MHz/40MHz	\$695
386-SX20 w/64k cache/ SX-20 non-Cache/SX-16	\$645/595/565

MICRO-L 386SX-V20 \$1695

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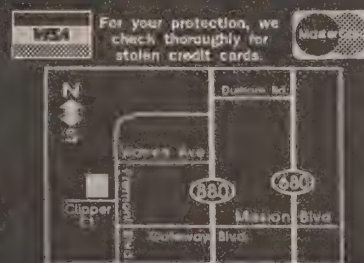
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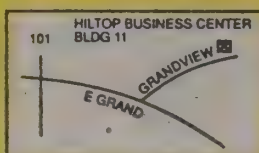


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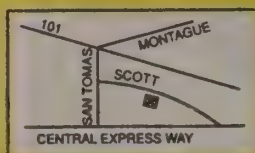
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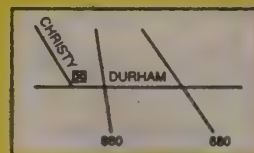
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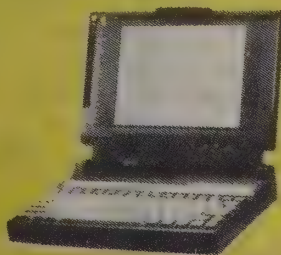
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Finding Out MORE About Workstations

A Short Tour Of UNIX-Specific Publications

By Paul Hoffman

PC users have it easy when it comes to getting information about their computers. There are a dozen magazines targeted at them, full of news, good information, informative advertising, and lots of tips. In fact, you are reading one of them right now.

MicroTimes covers workstations and UNIX more often than most PC magazines because we believe that people who work in large companies must understand a variety of computers, not just one type. Even if you are "just a PC user" today, you may find yourself a UNIX user a year or two from now. In addition, we have found that many of our readers who currently are primarily workstation users also want to know about the PC and Mac markets because those computers can do many tasks more cheaply than workstations.

However, if you're researching workstations in depth, you'll probably want to turn to UNIX-specific information sources in addition to our coverage.

GENERAL UNIX MAGAZINES

The two monthly UNIX magazines that most people know about are *UNIXWorld* and *UNIX Review*. These two compete head-to-head for approximately the same readers and the same advertisers. Both have circulations near 75,000. *UNIXWorld* is a subscription magazine, while *UNIX Review* is free to qualified readers (called "controlled circulation"). Typical issues are about 125 pages, which is perhaps one-third the length of typical PC and Macintosh magazines. In general, *UNIXWorld* covers the UNIX hardware and software companies in more detail than *UNIX Review*, but *UNIX Review* has more hands-on articles.

There is also a controlled circulation tabloid, *UNIXToday*, which is almost exclusively about the UNIX market, with little or no direct technical information. *UNIXToday* is targeted at UNIX purchasers, not UNIX users. Because *UNIXToday* has a looser circulation policy, its circulation is higher than that of its competitors, near 85,000.

These three magazines show a problem that is pervasive in the

workstation magazine market: target. Because workstations cost so much more than mainline PCs, they are rarely bought by individuals. In fact, a typical workstation software package costs more than a typical PC that is fully loaded with software. If a magazine targets primarily UNIX users (such as *UNIXWorld* and *UNIX Review*), the advertisers won't be too interested since these people are not the ones making the purchases. On the other hand, if the magazine targets purchasers more than users (such as *UNIXToday*), few people will be very interested in reading it since not that many people are responsible for purchasing UNIX systems.

Thus, the magazines try to strike a balance so that readers won't be bored and advertisers will have a consistent market. Of the three, *UNIXWorld* is the most interesting to typical workstation users. Although *UNIX Review* has more user-oriented articles, they are often aimed at too small of a slice of the potential market. Workstation users tend to use their systems for only a few applications, so they do not care as much as PC users about the range of potential programs and hardware that they might buy.

UNIXWorld is also much less gee-whiz about the market than *UNIX Review* or *UNIXToday*. This honest assessment of the market and the hype surrounding it has made *UNIXWorld* more popular among typical workstation users who have a moderate desire to keep up with the market but don't want to devote so much time to it.

MACHINE-SPECIFIC MAGAZINES

A second significant problem with general workstation magazines is that many of the ads and articles only relate to a small number of readers. In a magazine like *MicroTimes*, an advertisement for a PC software company is of value to any reader who uses a PC. In a general workstation magazine, however, an ad for software that only runs under SCO UNIX is not of any value to someone who has a Sun workstation. Many software vendors work on more than one UNIX platform, but few work on all of them.

This problem is even more serious for hardware vendors: a multi-

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port card for PC compatibles is of no interest to a Sun user. Hardware manufacturers have it even worse: once you own one brand of workstation, you would be hard-pressed to switch to another brand. So the value of Sun's advertisements in a general UNIX magazine are fairly diluted since many of the readers would rarely consider switching away from their current brand.

To solve these problems, some publishers have come up with brand-specific magazines. Thus, there are magazines like *SunWorld*, which is almost as long as *UNIXWorld* and *UNIX Review* and has a similar size of readership; like *UNIX Review*, it is also controlled circulation. All of the contents and all of the advertising are Sun-specific, making it much more interesting to readers and advertisers alike. Unlike the other magazines, *SunWorld* is free to qualified subscribers.

Even though the range of Sun users is as wide as the range of PC users, the content of *SunWorld* is directed fairly well. Most of the reviews and product descriptions are a bit over-positive, but they reflect exactly the interests of the readers. Of course, the advertisers hope that many of the people reading the magazine are also Sun purchasers, or at least have a fair amount of clout in recommending new products. They rely on the ability of end-users in a company to be able to requisition programs and add-on hardware.

Because Sun dominates the workstation market so well, *SunWorld* is not alone. There are two smaller controlled circulation journals, *Sun Expert* and *Sun Observer*, although they have fewer than half the number of readers. There are other manufacturer-specific magazines, and many of them are sponsored by the companies that make the computers, such as Hewlett-Packard and Apollo.

Probably the glitziest of these is *NeXTWorld*, which is still struggling to get off the ground (like NeXT itself). *NeXTWorld* reads like a running advertisement for the computer, similar to early issues of *Macworld*. There are a few application articles, but much of the editorial is breathless prose about new software and hardware products. There is very little discussion of why such a wonderful computer has such lousy sales or what users can do other than buy more products.

In such a cheerleading magazine, the only value a reader can get is from the list of product features. Magazines like *SunWorld* rise above this, willing to identify negative features in major products.

OTHER COMPUTER MAGAZINES

Magazines aimed at corporate management information systems (MIS) buyers also cover workstations, since large companies are prime markets for such systems. *ComputerWorld*, the grandparent of most computer magazines, is aimed directly at the corporate market and covers workstations in every issue. Because corporations are so concerned with making their computers run well

with each other, much of the emphasis in *ComputerWorld*'s coverage is on networking.

Beyond that, *ComputerWorld* looks at how workstations coexist with mainframes and micros. The emphasis of the magazine is mainframes and large systems, so the workstation coverage often compares traditional workstation tasks like computer-aided design and graphics modeling with the same tasks on mainframes. It may sound a bit strange to think about mainframes as platforms for graphics, but before there was much of a workstation market, many mainframes were purchased for just that, and are still being used for it today. In this way, *ComputerWorld* is a good reality check for people who only know about workstations.

Another popular MIS magazine, *Datamation*, covers the workstation market in a similar fashion. *Datamation* takes more of a solutions-oriented approach to its articles, however, so workstations are portrayed in a more useful light. *Datamation* has more of an emphasis on software than *ComputerWorld*, so workstation software gets more play.

AS PCS BECOME WORKSTATIONS

Today's definition of a workstation (a high-powered computer costing between \$5000 and \$50,000, running UNIX) may change even before this year is out. There are already many versions of UNIX for high-end PCs, and the top-of-the-line PCs, with UNIX, cost about as much as the bottom-of-the-line workstations. Although prices for both markets are dropping, they are dropping faster in the PC market. Thus, in about a year or two, you might see PCs running UNIX that compete well with today's \$10,000 workstations.

When this convergence happens, magazines like *PC Magazine* and *PC World* will have to adjust. *BYTE* magazine already covers UNIX and workstations, and its coverage is growing. *PC Magazine* gives some lip service to workstations, but rarely. As more PC users become workstation users, these magazines will want to cover workstations in more depth so as to keep readers and advertisers from migrating to other magazines such as *Personal Workstation*.

MicroTimes has been covering workstations since our early issues and, of course, will continue to do so. We do this not only for people who have a current interest in workstations, but to help those who will have to use workstations in the future. The market for workstations is very different from the PC market: by and large, there are no clones. The stores selling workstations are also different, and so is the way that UNIX software is sold. All of these things will probably blindside other magazines, but not, we hope, our readers. ■

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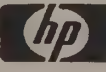
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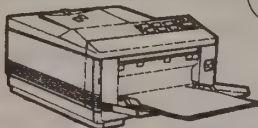
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Online Access To Government Information

As More And More Government Work Is Done On Computers, More And More Public Information Is Machine-Accessible. But While Some Agencies Are Leaping Into The Information Age, Others Are Dragging Their Feet.

By Adam Gaffin

Within a year, the San Francisco Public Library hopes to start an "electronic City Hall" that could eventually give residents online access—through library terminals and their home computers—to everything from Board of Supervisors' agendas to proposed changes in city zoning codes.

Made possible by a new VAX-based computerized card catalog at the San Francisco Public Library, the system is the brainchild of City Librarian Ken Dowlin, who developed a similar system for Colorado Springs, CO.

As more and more government work is done on computers, government agencies from City Hall to the Supreme Court are giving the public electronic access to their documents and information. The US Supreme Court now distributes its decisions electronically through the Internet research network, while Congress's investigative arm, the General Accounting Office, has begun experimenting with a similar system. The Government Printing Office has begun "printing" some of its documents on CD-ROM discs.

In Santa Monica, residents can send messages to city officials and discuss city issues on a "public electronic network."

In Hawaii, residents can dial up a state-compiled database that details virtually every statistic imaginable about their state, from the number of Hawaiians injured in boogie-board accidents in 1989 (seven) to the "great circle" distance between Kure

Atoll and West Quoddy Head, Maine (5788 miles).

Connecticut now requires state and local agencies to provide for public access when they buy new computer systems.

But, especially at the federal level, there is no standardization for the growing number of databases, online services, and bulletin board systems, creating confusion among users who have to try to remember different formats and phone numbers as they go from one database to the next. And for every agency that's moving its information online, there are a dozen that resist the move toward greater public access. Also, efforts to reduce the federal deficit could lead to economic restrictions on public access, as government tries to make a profit off the previously free information.

The act of opening government databases also raises privacy issues.

SAN FRANCISCO

"I started out ten years ago being a lot more optimistic" about electronic access to the government, Dowlin says.

Still, he hopes to bring to San Francisco what he helped start in Colorado Springs, as a librarian for the Pike's Peak Regional Library District, by using the city libraries' new card cataloging system to start a database of city records.

City agencies are already required to sub-

mit two copies of every document they produce to the library. Dowlin hopes to entice them to begin transferring them electronically, by starting a hypertext-like indexing system for city records.

From road and sewer work to redrawing zoning maps, much city work requires access to documents that can date back decades. But finding these documents can be a time-consuming task because they are not indexed in any meaningful form.

Dowlin hopes to assign a librarian to just this task, using the card catalog system. As city departments begin to use this index themselves, they will be more likely to transfer their documents electronically, gradually developing an electronic archive of city records available to the public through library terminals and home computers.

Dowlin says that in Colorado Springs, city departments eventually found it easier to scan the regional library database for information than to look through their own records.

He plans a major training program this fall, in which a team of librarians will visit every

As more and more government work is done on computers, government agencies from City Hall to the Supreme Court are giving the public electronic access to their documents and information.

high school in the city, showing teachers and students how to access the new system.

FEDERAL AGENCIES

At the federal level, a growing number of agencies have taken similar approaches, essentially ignoring a 1985 directive by the Office of Management and Budget that they try to hire private vendors to sell their information—and OMB is now looking at revising that directive. Observers say the Bush administration has not pursued privatization of government information with the same zeal as its predecessor.

The most dramatic example is the Food and Drug Administration, which recently

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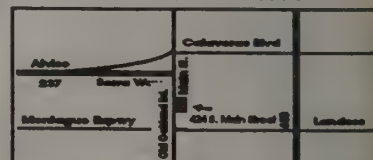
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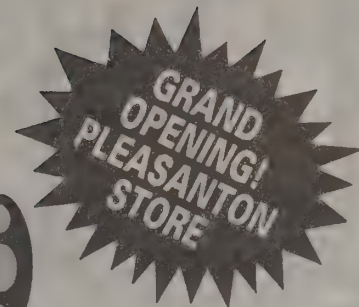
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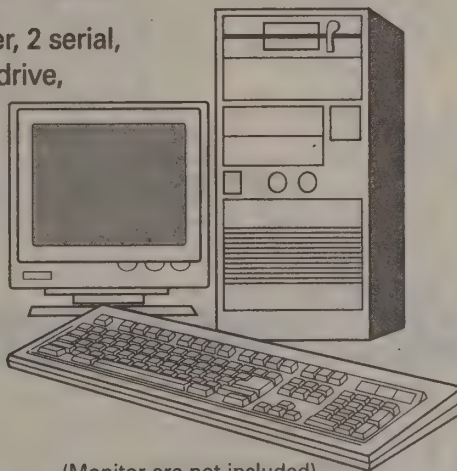


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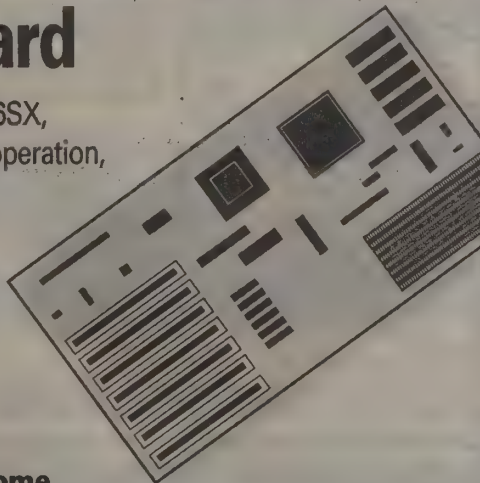
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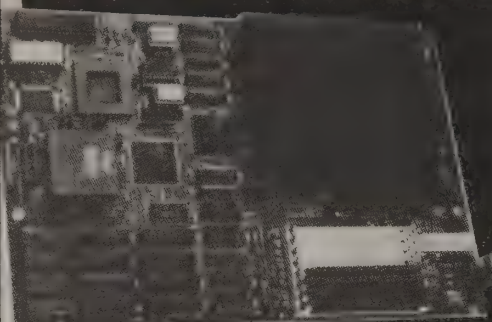
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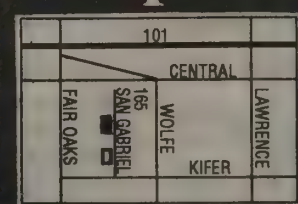


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ST 251-1 40 MB, MFM, 28ms"	225
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1038675 3.5 MB Board	305
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113645-001 4-12MB Exp Brd	450
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113646-001 1MB Module	119
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113633-001 1-9MB Exp Brd	199
113634-001 4-12MB Exp Brd	450
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118690-001 4MB Module	440
DeskPro 386N; 386SX/20	
118689-001 2MB Module	149
DeskPro 286N; 386N	
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DeskPro 386/33	
115144-001 2MB Module	215
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1Mx9-80	40
1Mx9-70	42
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256x9-80	11
256x9-60	12

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30F5348 512K Kit	\$54
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6450608 2 MB Module	149
Mdls 55SX; 65SX; 55LS; 65LS	
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6450375 1 MB Card	145
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34F3011 4-16 MB Exp Brd	900
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Z-605-1 2 MB Kit	\$189
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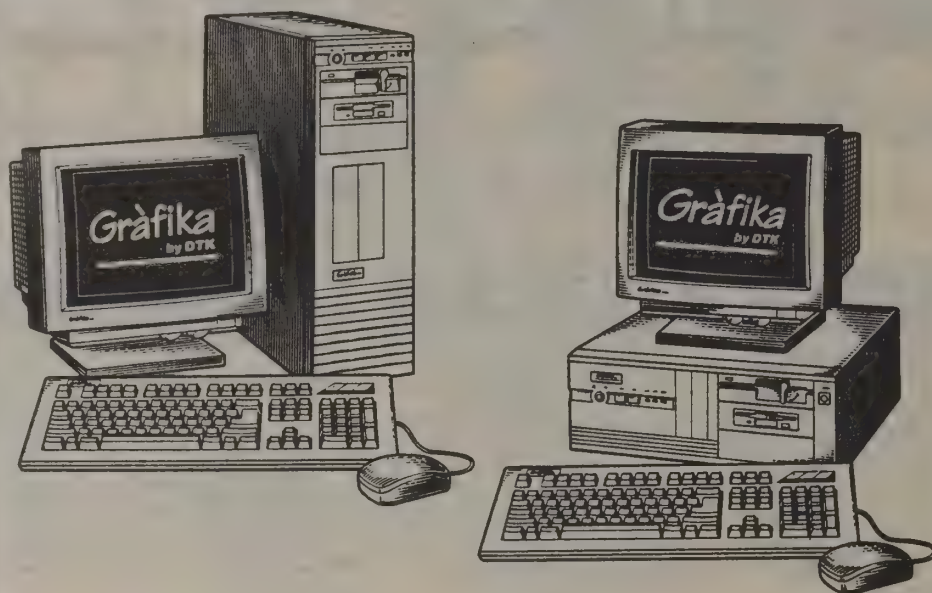
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Processor	286	386SX	386DX	386DX	386DX	386DX	486DX	486DX
Clock Speeds	16MHz	20MHz	25MHz	33MHz	33MHz	40MHz	33MHz	20MHz
External Cache	N/A	N/A	N/A	64KB	64KB	64KB	64KB	64KB
Configuration:								
Memory	2MB	4MB	4MB	4MB	4MB	4MB	8MB	8MB
Hard Disk	50MB	50MB	120MB	120MB	120MB	120MB	240MB	240MB
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NICE—486 System Board (Made in U.S.A.)

50MHz Version, Power Meter 22.3 MIPS, Available Now

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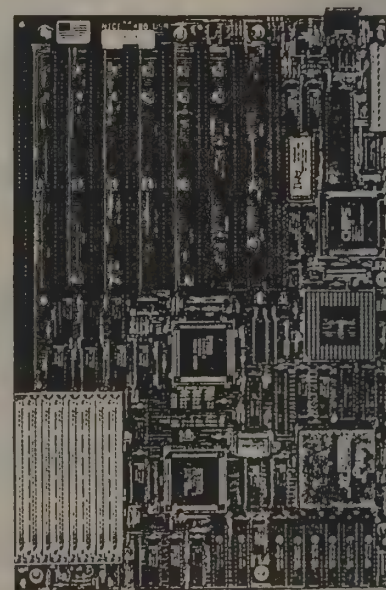
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33MHz System Board with 64K Cache and Intel 33MHz CPU

\$705.00

50MHz System Board with 256K Cache and Intel 50MHz CPU

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MONTHLY SPECIALS

Comet Micro 486DX 50MHz 256K RAM Cache System

Full-Size Tower Case with 250W Power Supply
486DX 50MHz 256K Cache (US Made, FCC Class B)
8MB 60ns RAM, Expandable to 64MB
IDE 2 Hard & 2 Floppy Drives Adapter
Teac 1.2MB and 1.44MB Floppy Drives
Quantum 244MB Hard Disk, 15ms, 256K Cache
Orchid Fahreheit 1280 SVGA 1MB VRAM & HiColor
2 Serial and 1 Parallel I/O Ports
NEC 4FG 15" .28mm 72Hz SVGA Monitor
Keytronic 101 Keys Enhanced Keyboard
Microsoft 400dpi Mouse

\$3,675.00

**Computer 2 Yrs Parts & 3 Yrs Labor Warranty
Monitor 2 Years Limited Manufacturer Warranty**

Comet Micro 486DX 33MHz 256K RAM Cache System

Mid-Size Tower Case with 230W Power Supply
486DX 33MHz 256K Cache (US Made, FCC Class B)
4MB 70ns RAM, Expandable to 64MB
IDE 2 Hard & 2 Floppy Drives Adapter
Teac 1.2MB and 1.44MB Floppy Drives
Quantum 120MB Hard Disk, 15ms, 256K Cache
Orchid Prodesigner IIs 1MB & HiColor
2 Serial and 1 Parallel I/O Ports
NEC 3FGX 15" .28mm 60Hz SVGA Monitor
Keytronic 101 Keys Enhanced Keyboard
Microsoft 400dpi Mouse

\$2,550.00

**Computer 2 Yrs Parts & 3 Yrs Labor Warranty
Monitor 2 Years Limited Manufacturer Warranty**

Comet Micro 386DX 33MHz 64K RAM Cache System

Desktop Case with 200W Power Supply
386DX 33MHz with 64K Cache
4MB RAM 70ns, Expandable to 32MB
IDE 2 Hard & 2 Floppy Drives Adapter
Teac 1.2MB or 1.44MB Floppy Drive
Maxtor 85MB Hard Disk, 17ms, 64K Cache
ET4000 SVGA Adapter with 1MB
2 Serial and 1 Parallel I/O Ports
ViewSonic 6 14" .28mm 60Hz SVGA Monitor
Keytronic 101 Keys Enhanced Keyboard
Microsoft 400dpi Mouse

\$1,575.00

**Computer 1 Yr Parts & 3 Yrs Labor Warranty
Monitor 1 Years Parts & Labor Warranty**

System Boards:

All system board come with CPU and 0 RAM	Unit Price
AMI EISA 486 Enterprise II 33MHz 128K Cache	\$1,895.00
AMI 486 Voyager 33MHz 64K Cache	1,225.00
AMI 386 Baby Screamer 33MHz 64K Cache	885.00
Orchid SuperBoard 486 33MHz 256K Cache	1,000.00
N.I.C.E. US Made 486 50MHz 256K Cache	CALL
N.I.C.E. US Made 486 33MHz 256K Cache	760.00
Mylex EISA 486 33MHz with 128K RAM Cache	1,570.00
Mylex 386 33MHz 64K Ram Cache	600.00
Micronic 386 33MHz with 64K Ram Cache	590.00
ISA 386 40MHz 64K Ram Cache	435.00
ISA 386 33MHz 128K Ram Cache	435.00
ISA 386 33MHz 64K Ram Cache	400.00
386SX 25MHz, Up to 16MB on Board	215.00

Hard Drives:

Conner CP3204 210MB IDE 16ms	\$550.00
Conner CP30104 120MB IDE 19ms	350.00
Conner CP3104 100MB IDE 19ms	325.00
Conner CP30084 84MB IDE 19ms	295.00
Conner CP30064 60MB IDE 19ms	225.00
Conner CP3000 40MB IDE 25ms	190.00

Fujitsu Hard Drives: 5 Years Warranty

Fujitsu M2622 330MB IDE/SCSI 3.5" 11ms	1,075.00
Fujitsu M2623 425MB IDE/SCSI 3.5" 11ms	1,175.00
Fujitsu M2624 520MB IDE/SCSI 3.5" 11ms	1,250.00
Fujitsu M2261 415MB SCSI/ESDI 16ms	1,250.00
Fujitsu M2263 660MB SCSI/ESDI 16ms	1,295.00
Maxtor 1.02GB Panther Drives SCSI 13ms	1,950.00
Maxtor XT8760E/S 675MB ESDI or SCSI 16ms	1,350.00
Maxtor LXT340A/S 340MB IDE or SCSI 13ms	920/945
Maxtor LXT213A/S 210MB IDE or SCSI 15ms	565/595
Maxtor LXT7120A 130MB IDE 15ms	360.00
Maxtor LXT7080A 85MB IDE 17ms	290.00
Quantum PRO40AT 40MB IDE 19ms	200.00
Quantum LPS52AT 52MB IDE 17ms	225.00
Quantum LPS120AT 122MB IDE 15ms	365.00
Quantum PRO210AT 210MB IDE 15ms	545.00
Quantum LPS240AT 244MB IDE 15ms	595.00

Floppy Drives:

Teac 5.25" 1.2MB Floppy Drive	\$60.00
Teac 3.5" 1.44MB Micro Floppy Drive	60.00

Monitors:

	Unit Price
Hitachi CM2085+ 20" .31 1280 X 1024 SVGA	\$1,700.00
Hitachi CM2187M 21" .31 1600 X 1280 SVGA	2,500.00
Idek MF5221 21" .31mm 1280 X 1024 SVGA	2,060.00
Idek MF5217 17" .28mm Super VGA 70Hz	1,020.00
NEC 5/6FG 17/21" SVGA Monitor	CALL
NEC 4FG 15" 72Hz SVGA Monitor	770.00
NEC 3FGX 15" 60Hz SVGA Monitor	650.00
Nanao N9500 20" .31mm 1280 X 1024 SVGA	1,750.00
Nanao N9080i 16" .28mm 1280 X 1024 SVGA	1,045.00
Seiko CM2050 20" .31mm 1024 X 768 SVGA	1,750.00
Seiko CM1450 .25mm 1024 X 768 SVGA	555.00
Sony 1604 .25mm 17" 1024 X 768 SVGA	1,050.00
Sony 1304 .25mm 1024 X 768 SVGA	565.00
Toshiba P21CM00 21" .31mm 1280 X 1024	2,150.00
Relisys 14" SVGA Monitor 1024 X 768 .28mm	300.00
ViewSonic 8 20" Super VGA Monitor	1,650.00
ViewSonic 7 17" 1280 X 1024 SVGA Monitor	1,175.00
ViewSonic 6 14" .28mm NI 1024 X 768	370.00
ViewSonic 4 SVGA .28mm 1024 X 768	315.00
ViewSonic 1 14" VGA Monitor 640 X 480	245.00
14" Amber Monochrome Monitor	105.00

Miscellaneous:

Colorado Jumbo 250MB Tape Backup	\$280.00
Colorado Jumbo 120MB Tape Backup	230.00
96/2400 Send & Receive FaxModem with MNP 5	120.00
96/2400 Send & Receive FaxModem	95.00
Internal 2400B Modem	59.00
Sound Blaster Board	115.00
Sound Blaster Pro	205.00
Full Size Tower with 250W Power Supply	145.00
Middle Size Tower with 230W Power Supply	115.00
Mini Tower with 200W Power Supply	90.00
Mini Case with 200W Power Supply	87.00

Printers:

Panasonic KXP4450i 11ppm Laser Printer	\$1,099.00
Panasonic KXP4420 8ppm Laser Printer	710.00
HP LaserJet III 8 ppm	1,495.00
HP LaserJet IIIP 4 ppm	1,050.00
HP Laser Jet IIP+ 4ppm	815.00
Ram Upgrade Board with 1MB for KXP4420/4450i	105.00
Ram Upgrade Board with 1MB for HP II/III/P	95.00

Video Adapters:

	Unit Price
ATI Wonder HiColor XL 1MB & 400 dpi Mouse	\$215.00
ATI Graphic Vantage 1MB & 400 dpi Mouse	360.00
ATI Graphic Ultra 1MB VRAM & 400 dpi Mouse	550.00
Diamond SpeedStar Plus with 1MB & HiColor	189.00
Diamond Stealth 1MB VRAM & HiColor	280.00
Orchid Fahrenheit 1280 1MB VRAM & HiColor	280.00
Orchid Fahrenheit 1280-D 32bit Video Adapter	315.00
Orchid Prodesigner IIs 1MB & HiColor	185.00
Oak 16Bit VGA Adapter 800 X 600	45.00
Tseng Lab ET4000 SVGA Adapter with 1MB	115.00
#9GX Level 2 to 5, 22 to 25	CALL
Metheus Graphic Adapters	CALL
Paradise OEM SVGA with 256K/512KB	70/85
Trident 8900 Chip Set 1MB SVGA Adapter	85.00
Mono Graphic Adapter	18.00

Add-On Cards:

2 Serial, 1 Parallel, 1 Game Ports Card	\$18.00
IDE 2 Hard/2 Floppy Drives Adapter	18.00
IDE 2 Hard/2 Floppy Drives Adapter with I/O Ports	32.00
Ultrastor ESDI Controller w/32K Buffer	164.00
Adaptec 1522/1542 SCSI Host Adapter Kit	180/275
DTC 6280 24MHz ESDI Cache Controller	140.00
DTC 3280 16 Bit SCSI Controller	145.00
SCSI or ESDI Controller for EISA Bus	CALL

Input Devices:

Keytronic 101 Keys Plus Keyboard	\$44.00
MaxiSwitch 101 Key Keyboard	44.00
OmniKey Ultra Enhanced Keyboard	95.00
OmniKey 102 Enhanced Keyboard	72.00
OmniKey 101 Enhanced Keyboard	67.00
Logitech Dextra 3 Button Mouse with Paint	29.00
Logitech 400dpi Serial/Bus Mouseman	64/69
Logitech Kitz Serial Mouse	49.00
Microsoft 400 dpi Serial/Bus Mouse	85.00

Power Supplies:

150W XT Size Power Supply	\$49.00
200W XT Size Power Supply	59.00
200W Square Size Power Supply	59.00
230W AT Size Power Supply	59.00
230W AT Size Power Supply for Tower Case	69.00
300W AT Size Power Supply for Tower Case	99.00

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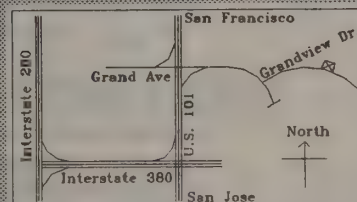
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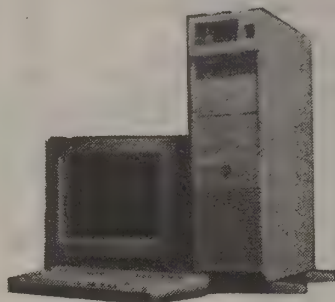
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Prices subject to change w/o notice
Not responsible for typos errors
Prices based on cash prices
Please call for items not listed
One year warranty on parts
Three years warranty on labor
Dealer & Quantity Pricing Available



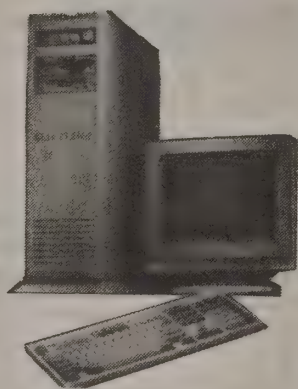
Touch For The Future ACR Computer Systems



486-50 SVGA Cache System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

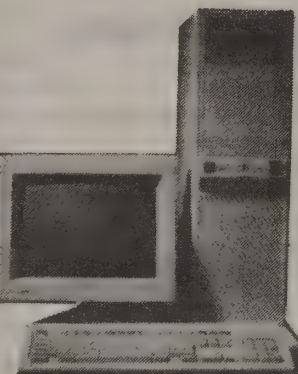
\$2375



486-33 SVGA Cache System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$1495



386-40/64KB Cache SVGA System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$1245



386-33/64KB SVGA System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$1195

386-25SX SVGA System

•Basic Configuration •40 MB 28ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$895

486-33 EISA 256KB SVGA System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$2525

486-SX20 Cache SVGA System

•Basic Configuration •120 MB 16ms Hard Disk Dr
•14" SVGA Monitor w/16-Bit SVGA Card

\$1425

MOTHERBOARDS

386SX-20	\$190
386SX-25	220
386-33/64K Cache	390
386-40/64K Cache	400
486-33/64K Cache	690
486-33/128K Cache	740
486-33/256K Cache	780
486-50/64K Cache	1530

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-Motherboard w/1 MB RAM	
-Internal clock	
-1.2 or 1.44 FD	
-Math coprocessor socket	
-2S, 1P, 1G ports	
-Enhanced Case w/power supply	
-101 keyboard	
-AMI 386SX/20	\$719
-AMI 386/33	985
-AMI 486/33 ISA	1816
-AMI 486/33 EISA	2096
-Mylex 486/33 EISA	2096
-Micronics 386SX/20	Call
-Micronics 386/33	798
-Micronics 486/33 ISA	1458
-Micronics 486/33 EISA	1598

*F/H CONTROLLERS

-WD1007WA2 ESDI	\$139
-Ultrastor 12F ESDI	295
-7000 FAST SCSI	295
-Adaptec 1542B SCSI	247
-IDE controller	14
-Mylex DCE 376 EISA	650

*HARD DRIVES

-Conner All Models	Special
-Maxtor All Models	Special
-Seagate All Models	
-WD IDE, Fujitsu, Quantum	
-Other Brands Available	
-Always Special Opti Drive	

*VIDEO CARDS

-Diamond Speedstar all models	
-Video 7 VRAM II	
-Orchid Pro Designer IIs w/1MB	\$189
-ATI Wonder XL	
-Hercules Graphics Station	
-X-Performance	
-CAD Race	
-Trident 9000 w/1MB	89
-United Solution w/1 Meg	
-Matheus	Call

*MONITORS

-Supertron	\$297
-AlphaPlus (non-int)	
-Sony 1304	565
-NEC 3FG/4FG/5FG/6FG	
-Nanao All Models	
-Hitachi All Models	
-Cornerstone	
-Toshiba 17"	1250
-Raster Ops	
-Mitsubishi	Special

*POWER SUPPLY & CASE

-Mid-vertical w/PS	\$125
-Full vertical w/PS	139
-Extra 10 bay vertical w/PS	165
-PC Power & cooling	
-U.S. made all models	
-Desktop full & baby	

*KEYBOARD & OTHERS

-Keytronics 101	\$43
-Omni keyboard all models	
-Other brand available	
-Sound Blaster	\$134
-Sound Blaster Pro	

One Year Limited Warranty
Prices Subject To Change w/o Notice

*EVEREX

-Step 386-33	Call
-Step 486-33	Special

*MODEMS

-USR HST, Dual Standard	
-Telebit 1000, 2500, 3000	
-Hayes all models	
-Everex all models	
-Fax/modem 9600	

*MOUSE

-MS/Logitech ser/par	
-All models	

*TAPE BACK-UP

-Archive VP 150, 250	
-Mountain 150, 250, 2.2G	
-Colorado 40, 120, 250	

*PRINTERS

-Panasonic all models	
-Okidata Fujitsu	
-HP laser all models	
-Canon laser	
-QMS Citizen	

*NETWORKS

-Novell, software & hardware	
-Artisoft (LANtastic)	
-SCO, Proteon, Aquila	
-3COM	

*SCANNER & DIGITIZER

-HP Scanner 2C	
-Microtek	
-UMAX UC-300	
-Summa Graphics	
-Kurta	

*UNIX & XENIX

-Interactive	
-SCO UNIX	
-TCP/IP & NFS	
-DEC Station 5000	

*LAPTOP & NOTEBOOK

-Toshiba, Sharp, AST	
-NEC, Everex, ALR	
-IBM, Compaq, Sharp	

*AST

-Premium 386SX/20	\$1599
-Premium 386-33	3942
-Premium 486-33	5059

*COMPAQ

-Deskpro 386SX/20	\$1395
-Deskpro 386-33	5095
-Deskpro 486-33	12,011

*IBM

-PS/2, 55SX	\$1765
-PS/2, 70B21	2497
-PS/2, 80A61	4485

*APPLE

-MAC LC/20	\$2275
-MAC SI/30	3295
-MAC IIFX	6375

*HP

-Vectra 386SX	Call
-Vectra 386-33	Special
-Vectra 486-33	Call

We Are An Authorized Dealer

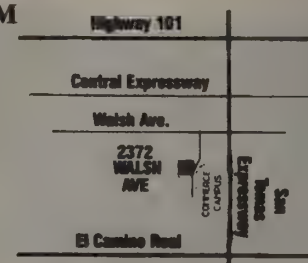
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OPEN UNTIL 7PM WEEKDAYS FOR YOUR CONVENIENCE

Texas Instruments



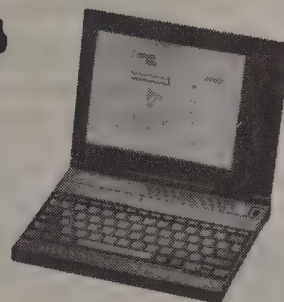
TravelMate™ 3000 Notebook Computer

New Lower Prices

TM3000 with 60MB hard disk drive	\$2,429.00
TM3000 with 80MB hard disk drive	\$2,729.00
TM3000 with 120MB hard disk drive	\$3,099.00

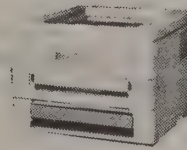
- 5.7 Pound 386-20SX Notebook
- 10" VGA Display 640 X 480
- 4MB RAM Expandable to 6MB
- MS-DOS 5.0, Windows 3.0, TravelPoint Device.

TM2000 Notebook



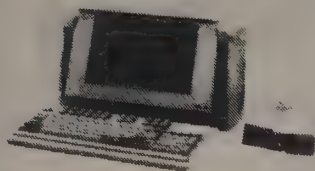
TM2000	20MB	\$ 979
TM2000	40MB	\$1279

TI MicroLaser



PS17 9ppm		\$1209
PS35 9ppm		\$1475
PS17XL 16ppm	...	\$2499
PS35XL 16ppm	...	\$2799
AppleTalk for Mac		
for PS/PSXL		\$99/155

VGA PORTABLE GAS PLASMA / LCD



- 80386-258X
- 1MB EXP. TO 16MB
- 2 Expansion Slot
- 1.2MB w/FHDC (1.44MB Optional)
- VGA 640 X480 16 Gray Scale
- 2 Serial 1 Parallel
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

\$1695 / \$1495
GAS PLASMA LCD

386-25SX Notebook



- 386-258X
- 2MB EXP. TO 8MB
- Stand-by Mode (Includes CPU, I/O and peripheral automatic power down)
- SuperTwist VGA LCD, 32 Gray Scale
- 1.44mb Microfloppy Drive,
- 1 Serial, 1 Parallel, VGA External Port,
- External 101 keyboard Port, Mouse Port
- 1 SCSI Port
- One year Warranty Parts & Labor

\$2095_{60MB} / \$2295_{80MB}

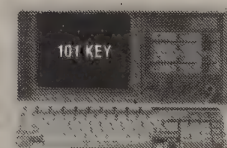
386-33DX Notebook



- 80386-33DX WITH 32K CACHE
- 4MB EXP. TO 16MB
- SuperTwist VGA LCD, 32 Gray Scale
- 1.44mb Microfloppy Drive,
- External Drive Port
- 1 Serial, 1 Parallel, VGA External Port,
- External 101 keyboard Port
- AT-Bus I/O (100pins) for Docking Station
- 80MB /120MB Hard Disk (19ms)
- One year Warranty Parts & Labor

\$2795_{80MB} / \$2995_{120MB}

CRT COLOR PORTABLE



- 80386-33DX WITH 64K CACHE
- 4MB EXP. TO 64MB
- Super VGA 0.28mm Dot Pitch
- 1.2mb and 1.44mb Floppy Drive
- 2 Serial, 1 Parallel,
- SVGA w/1mb RAM
- 120MB Hard Disk (18ms)
- One year Warranty Parts & Labor

\$2699

McTEK 386-16/386-25SX

- 80386-16/386-258X
- 1MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

\$695 / \$795

McTEK 386-25/386-25 cache

- 80386-25/386-25 WITH CACHE
- 1MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 40MB Hard Disk (17ms)
- One year Warranty Parts & Labor

\$889 / \$959

McTEK 386-33/486-25

- 80386-33/486-25 WITH CACHE
- 1MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 120MB Hard Disk (17ms)
- One year Warranty Parts & Labor

\$1359 / \$1619

McTEK 486-33 ISA/EISA

- 80486-33 WITH 64K CACHE
- 4MB EXP. TO 16MB
- 8 Expansion slots
- 1.2MB w/FHDC (1.44MB Optional)
- 2 Serial 1 Parallel
- 101 Enhanced keyboard
- 120MB Hard Disk (17ms)
- One year Warranty Parts & Labor

\$1699 / \$2399

MONITORS VIDEO CARDS

Hercules Graphic Station card (1024X768 256color)...	\$549
Hercules 2MB upgrade.	\$199
Fahrenheit 1280	\$325
VGA card 16bits w/1MB ..	\$95
ATI Ultra 8514 + 1MB ..	\$650
ATI Vantage 1MB	\$465
ATI VGA wonder XL	\$255
Teenglabs (32768 color) \$155	
Teenglabs w/1mb	\$119
Selko 1450 VGA	\$575
NEC 3FGX	\$859
NEC 4FG	\$789
NEC 5FG	\$1450
Mitsubishi 20"(Model 6345L) \$1950	
SVGA monitor (1024x768) \$325	
SVGA non-interlaced ..	\$399

PRINTER

HP LaserJet III	\$1475
HP LaserJet IIP	\$999
HP IIP Plus	\$799
HP DeskJet 500	\$399
HP DeskJet 500C	\$799
HP Postscript Cartridge ..	\$495
HP/TI 1MB upgrade	\$99
Citizen GSX140 Plus (24pin) \$299	
Citizen GSX130 (24pin) ..	\$249
Citizen PN48	\$375
Panasonic KXP1124L	\$285
Panasonic KXP1123	\$235
Fujitsu DL3400	\$399
Fujitsu DL3600	\$559
Canon BJ-10ex	\$339
NEC Model 2 90	\$1459
QMS410	\$1795

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Logitech C9 serial/bus	\$69/75
Trackman serial/bus	\$85/89
Scanman plus/256	\$165/299
DFI Color Hand Scanner ..	\$485
ScanPlus Gray 300	\$499
ScanPlus Color 3000	\$750
Colorado 120mb tape bkup ..	\$285
Colorado 250mb tape bkup ..	\$325
Everex 60mb tape bkup	\$245
Modem 2400baud int.	\$85
Fax/modem 9600/2400	\$175
Everex 3MB exp. card	\$109
Novell Netware 2.2 (5 user) \$595	
Wordperfect Windows upgrade \$99	
Wordperfect 5.1	\$239
Wordperfect 5.1 student rebate \$100	
Wordperfect 5.1 (trade up) ..	\$149

HARD DISK DRIVE

20MB MFM (40ms)	\$179
40MB ST251-1(28ms)	\$245
50MB Quantum (17ms) ..	\$265
80MB Conner (19ms)	\$319
80MB Maxtor IDE (18ms) ..	\$319
80MB MFM (28ms)	\$325
50MB Quantum for Mac ..	\$289
105MB Quantum for Mac \$385	
120MB Conner (19ms)	\$349
120MB Maxtor (SCSI)	\$389
120MB Maxtor (16ms)	\$379
200MB Conner (18ms)	\$549
240MB Quantum (16ms) ..	\$595
330MB Maxtor (16ms)	\$1079
330MB Maxtor (SCSI)	\$1179
600MB Maxtor (14ms)	\$1595
660MB Maxtor (SCSI)	\$1695

Monthly special

Sony MultiScan 1304 ...	\$555
9VGA Monitor 14" .28mm	
W/ SVGA CARD 512K	\$330
CD ROM Ext. w/6 Software	\$559
50MB External for Mac	\$299
105MB External for Mac	\$439
Sony CD ROM Internal ..	\$499
HP LaserJet III	\$1475
Novell Lite w/DR DOS ..	\$69
ScanPlus 3000 Color ..	\$749
Hercules Graphic Station	\$549

McTEK SYSTEMS, INC.

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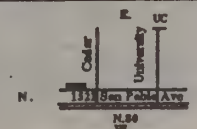
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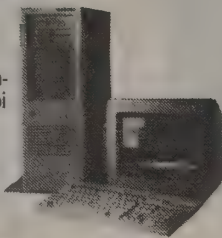
MICRO MARKET PLACE

LOOKING FOR 486-50 POWER

ALL SYSTEMS 5 YEAR LABOR WARRANTY

486-50 w/256K Super VGA Monitor 200 MB Hard Drive

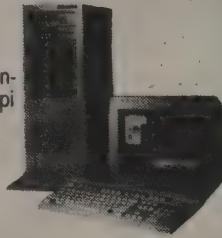
- Intel 486-50 w/256K Cache
- 4 MB RAM exp. to 32 MB
- 200 MB Conner Hard Drive
- 14" Viewsonic 6 Monitor Non-Interlaced (1024x768) .28 dpi
- Tseng ET 4000 VGA Card w/1MB
- Teac 3.5 & 5.25 Floppy Drive
- IDE Hard/Floppy Controller
- AT I/O Card
- Clock/Calendar
- 101 Enhanced Keyboard
- Mid-tower Case



\$2500

486-33 w/64K Cache Super VGA Monitor 200 MB Hard Drive

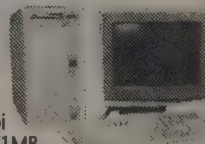
- Intel 486-33 w/64K Cache
- 4 MB RAM exp. to 32 MB
- 200 MB Conner Hard Drive
- 14" Viewsonic 6 Monitor Non-Interlaced (1024x768) .28 dpi
- Tseng ET 4000 VGA Card w/1MB
- Teac 3.5 & 5.25 Floppy Drive
- IDE Hard/Floppy Controller
- AT I/O Card
- Clock/Calendar
- 101 Enhanced Keyboard
- Mid-tower Case



\$2050

386-40 w/64K Cache Super VGA Monitor 120 MB Hard Drive

- AMD 386-40
- 4 MB RAM exp. to 32 MB
- 120 MB Conner/Quantum Hard Drive
- 14" Mitac Super VGA Monitor (1024x768) .28 dpi
- Trident Super VGA Card w/1MB
- Teac 3.5 & 5.25 Floppy Drive
- IDE Hard/Floppy Controller
- AT I/O Card
- Clock/Calendar
- 101 Enhanced Keyboard
- Minitower or Desktop Case



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130 MB LXT-7120, 15ms	340
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340 MB LXT-340A, 13ms	895
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NEC	
MultiSync 3FGX 15" 1024x768, .28	\$635
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MultiSync 5D 20" 1280x1024, .31	1950
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1604S 17" 1024x768, .25	1025
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EYE-Q 14" Mono Amber	90

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ProDesigner IIs w/1MB, 32,768 colors	180
DIAMOND	
SpeedStar Plus 1MB w/Sierra Hi-Color Chip ..	\$180
2the MAX	
VGA 4000+ 1MB w/Sierra Hi-Color Chip	\$160
OTHERS	
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OAK 512K	60
OAK 256K	40

**5 YEAR IN-STORE LABOR WARRANTY
WITH 1 YEAR PARTS WARRANTY**

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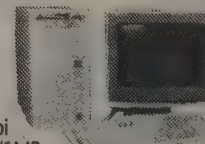
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386SX-25 Super VGA Monitor 80 MB Hard Drive

- Intel 386SX-25
- 2 MB RAM exp. to 8 MB
- 80 MB Quantum/Maxtor Hard Drive
- 14" Mitac Super VGA Monitor (1024x768) .28 dpi
- Trident Super VGA Card w/1MB
- Teac 3.5 & 5.25 Floppy Drive
- IDE Hard/Floppy Controller
- AT I/O Card
- Clock/Calendar
- 101 Enhanced Keyboard
- Minitower or Desktop Case



\$1075

PRINTERS

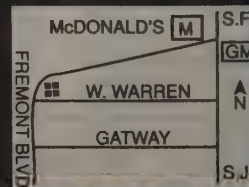
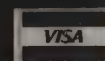
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GSX130 24-pin	250
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STAR	
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LOGITECH		
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IMPRESSION		
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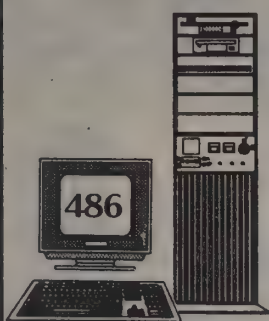
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- MICROSOFT COMPATIBLE MOUSE

VIDEO COMBO

- 17" Samsung 1024 III Monitor
- Orchid Pro Designer IIs w/1 MB

\$995

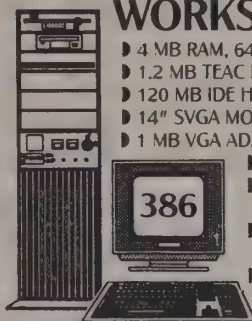
DIGITIZER

- Calcomp
- 12x12
- 4 Button Cursor

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SC386-33 BUSINESS WORKSTATION



- 4 MB RAM, 64K CACHE
- 1.2 MB TEAC FLOPPY
- 120 MB IDE HARD DISK
- 14" SVGA MONITOR 1024 0.28 mm
- 1 MB VGA ADAPTER

- DESKTOP AT CASE
- 101 ENHANCED KEYBOARD
- 2 SERIAL, 1 PARALLEL, 1 GAME
- MICROSOFT COMPATIBLE MOUSE

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TOTAL BUSINESS SOLUTIONS: MICROSOFT OFFICE FOR WINDOWS

- Word For Windows
- Excel 3.0 Spreadsheet
- Powerpoint Presentation
- Electronic Mail

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VIDEO COMBO

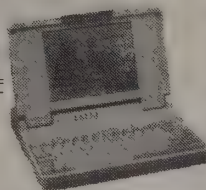
- 1024 14" Monitor 0.28 mm
- Super VGA Card

\$350

ONE YEAR PARTS AND LABOR WARRANTY ON ALL SYSTEMS

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- SERIAL & PARALLEL PORTS
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- MICROSOFT DOS 5.0



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- 1 MB RAM
- 1.2 MB TEAC FLOPPY
- 85 MB IDE HARD DISK
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- 16 BIT VGA ADAPTER
- DESKTOP AT CASE
- 101 ENHANCED KEYBOARD
- 2 SERIAL, 1 PARALLEL, 1 GAME
- MICROSOFT COMPATIBLE MOUSE

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BEST DEAL SC286-12

- 1 MB RAM
- 1.2 MB TEAC FLOPPY
- 42 MB IDE HARD DISK
- MONOCHROME MONITOR
- MONOGRAPHIC ADAPTER
- DESKTOP AT CASE
- 101 ENHANCED KEYBOARD
- 2 SERIAL, 1 PARALLEL, 1 GAME
- MICROSOFT COMPATIBLE MOUSE

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386SX/16MHz	190
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Novell 8 Bit NE 1000	155

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Everex 60MB Ext Cass	699
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Colorado Ext Contr Kit	125
Colorado 250MB	355
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Game Card	19
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Maxiswitch 101 Key	49
Click 101 Key	49

PRINTERS

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Panasonic 1124	265
Panasonic 1624	365
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MOUSE

Logitech Trackman	83
Logitech Bus/Serial	75
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80387-SX16	160
80387-25/33	235/245

SCHWAB COMPUTER

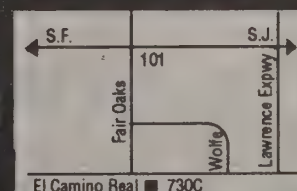
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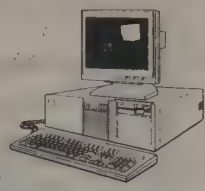
486-33 MHz

W / 2 5 6 K C A C H E

- ▼ 4 MB RAM Installed
- ▼ Intel 486-33 MHz CPU & Math Co-processor
- ▼ 1.2 and 1.44 MB Floppy Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ AT Multi I/O (25/1P/1G)
- ▼ Clock/Calendar with battery back-up
- ▼ Enhanced 101 Keyboard
- ▼ 120 MB IDE Hard Drive

\$1550

Monitor Optional



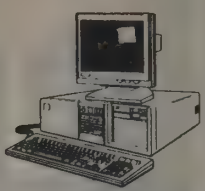
486-25 MHz

W / 6 4 K C A C H E

- ▼ 4 MB RAM Installed
- ▼ Intel 486-25 MHz CPU & Math Co-processor
- ▼ 1.2 and 1.44 MB Floppy Drive
- ▼ 1:1 Interleave 2 HD/FD Controller
- ▼ AT Multi I/O (25/1P/1G)
- ▼ Clock/Calendar with battery back-up
- ▼ Enhanced 101 Keyboard
- ▼ 120 MB IDE Hard Drive

\$1450

Monitor Optional



386-33 MHz

W / 6 4 C A C H E

- ▼ 0 Wait State on Motherboard
- ▼ Main Memory 1 MB
- ▼ Expandable to 2 MB/4 MB/8 MB
- ▼ Support Coprocessor Intel or Weitek
- ▼ AMI BIOS set up
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ HD Controller with 28M5 80 MB Hard Drive

\$880

Monitor Options

Mono Monitor with Card. \$95 Super VGA (1024x768) VGA Monitor with 16 bit Card. \$390

VGA Monitor with 16 bit Card. \$300



386-25 MHz

(O W A I T S T A T E)

- ▼ Main Memory 1 MB
- ▼ Expandable to 2 MB/4 MB/8 MB
- ▼ Support Coprocessor Intel or Weitek
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Controller with 28M5 40 MB Hard Drive

\$750

Monitor Options

Mono Monitor with Card. \$95 Super VGA (1024x768) VGA Monitor with 16 bit Card. \$390

VGA Monitor with 16 bit Card. \$300



386-16 SX

(O W A I T S T A T E)

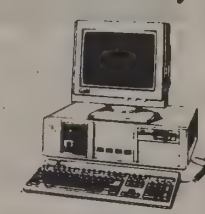
- ▼ Main Memory 2 MB (EMS On Board)
- ▼ 8 Slots and Socket for Intel 80387 SX
- ▼ 200 W Approved Power Supply
- ▼ Real Time Clock with Battery Backup
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB & 1.44 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Hard Drive Controller with 80 MB Hard Drive

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Monitor Options

Mono Monitor with Card. \$95 Super VGA (1024x768) VGA Monitor with 16 bit Card. \$390

VGA Monitor with 16 bit Card. \$300



286-12/16MHz

(O W A I T S T A T E)

- ▼ Main Memory 1 MB (EMS On Board)
- ▼ 8 Slots and Socket for Intel 80387
- ▼ Foot Print LED AT Case
- ▼ Real Time Clock with Battery Backup
- ▼ 2/Serial 1/Parallel 1/Game Port
- ▼ 101 Extended Keyboard
- ▼ 1.2 MB TEAC Floppy Drive
- ▼ 1:1 Interleave Hard Drive Controller with 40 MB Hard Drive

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Monitor Options

Mono Monitor with Card. \$95 Super VGA (1024x768) VGA Monitor with 16 bit Card. \$390

VGA Monitor with 16 bit Card. \$300



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387 DX-25	\$210	PANASONIC 1180 (9 pin)	\$159	CP-30104 120 MB IDE	\$350
387 DX-33	\$210	PANASONIC 1123 (24 pin)	\$229	CP-3204F 200 MB IDE	\$589
A D D O N B O A R D		PANASONIC 1124i (24 pin)	\$299	Maxtor 213A 213 MB IDE	\$609
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Color Graphic/Printer	\$35	PANASONIC 4450 LASER	\$1195	Teac 1.2/1.44 MB Fly	\$60
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SCSI 1:1 HD/FD Cont.	\$125	Serial TRACKMAN 320 dpi	\$85	POWER II 4E 1024x768, Non-Int	\$359
RLL 1:1 HD/FD Cont.	\$80	Bus TRACKMAN 320 dpi	\$85	SONY 1304 Super VGA, 1024x768	\$595
Orchid Pro Designer w/1 MB 1024x768 Fastest VGA Card	\$269	SCANMAN PLUS	\$179	441 VGA 14" 800x600, .41	\$245
T A P E B A C K U P		Catchword	\$125	SUPERTRON 14" Monochrome	\$105
COLORADO 120 MB/250 MB	\$249/325			SEIKO 1440 (1024x768)	\$499
EVEREX 80 MB/120 MB	\$229/269			SEIKO 1450 14" Non-Int	\$595
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240mb/15ms (IDE) Quantum	548
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Citizen GSX-30 (24-pin)	258
Citizen GSX-140 Plus (24-pin)	328
Citizen GSX-145 (24-pin)	388
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Panasonic KX-P1180	154
Panasonic KX-P1123	198
Panasonic KX-P1121	284
Panasonic KX-P1824	358
Cable for Printer	5

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Maxswitch	34
Keytronics	30
Focus 2001 / 3001 / 5001	44 / 64 / 74
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Oak VGA-512K (1024-768, 16-Bit)	48
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Video 7VHAM II w/1MB	338
Diamond Speed Star Plus w/1MB	144
Diamond Speed Star w/Hi-Color	155
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Orchid Prodesigner IIs w/Hi-Color	165
Orchid IIs w/1MB with Sony 1034HG	708
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NEC 4FG (15", 1024-768, 0.28)	798
NED 4DS (16", 1024-768, 0.28)	978
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	108

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Intel 387SX-20	148
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Logitech Mouseman Bus (400dpi)	73
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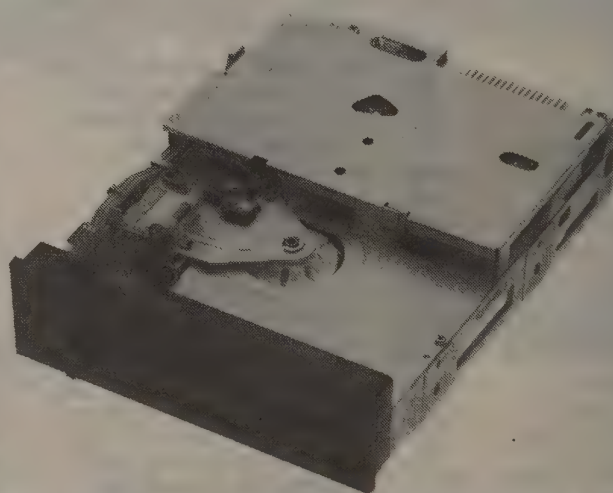
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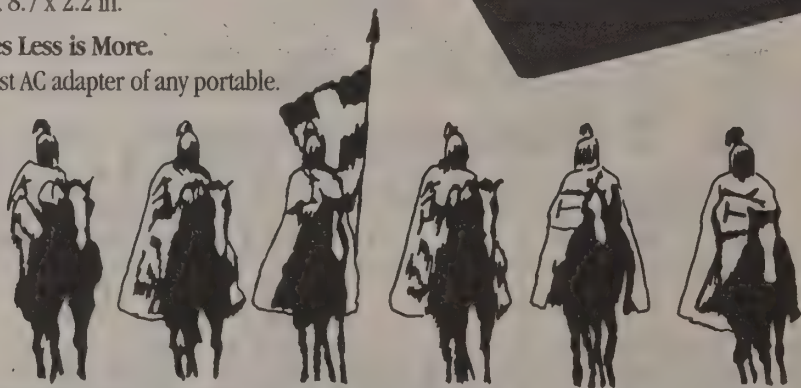
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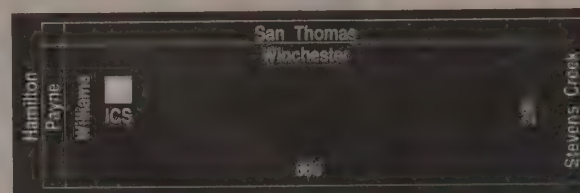
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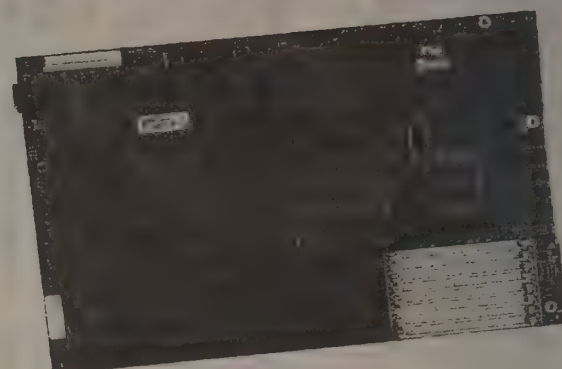
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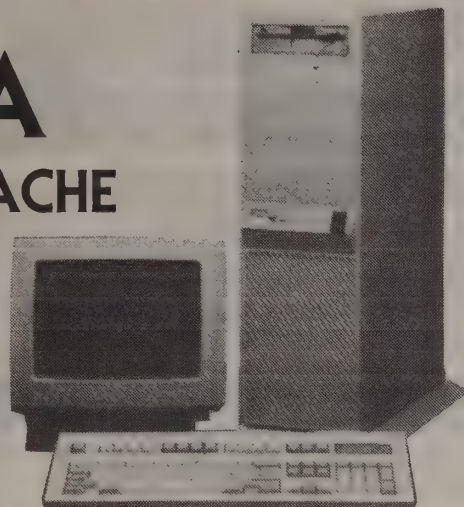
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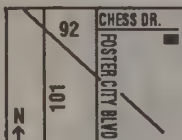
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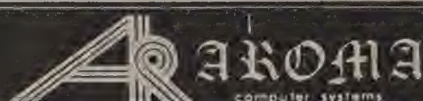
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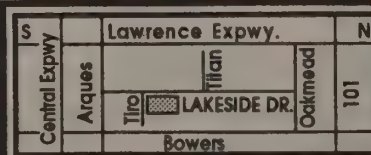
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Fine Tuning Windows With Elana

This Shareware Control Panel Extension Helps Customize Your System To Your Working Needs

By
Lenny Bailes

Users of Microsoft Windows can make cosmetic changes to their interface through the Windows Control Panel. But beneath the Windows interface lurks a vast hidden sea of configuration options.

Advanced Windows setup may defy even the most adventurous navigators. The control panel allows for installation of printers, and the setup of basic operating defaults. But if you want to adjust the mechanics of Windows' memory usage, disk usage, or I/O port settings, it's not so easy. Even to set an application to open on startup, users must learn to insert cryptic statements in two ASCII text files, Win.ini and System.ini. (Windows 3.1, at least, will make life somewhat easier by giving users a startup program group.)

Since Windows is a graphic interface, you would expect to configure it through pull-down menus—not by burrowing into obscure readme files and composing cryptic parameter shopping lists.

Imagine the difference if memory and disk parameters could be controlled by clicking on icons or entering choices in dialog boxes. What if online help were available for the arcane parameters of System.ini? Just click on an icon called "Disk Control." As your mouse hovers uncertainly over the option called "VirtualHDIRQ=", you click a help button. An English explanation in a dialog box tells you that VirtualHDIRQ affects the speed of Windows' disk access; some systems can use it and others must disable it.

AN IMPOSSIBLE DREAM? NO, IT'S ELANA

Elana is an invaluable shareware Windows utility that provides just this "dream" feature. Elana iconizes and automates every single parameter setting in the System.ini file. Just by clicking on an icon with a mouse you can:

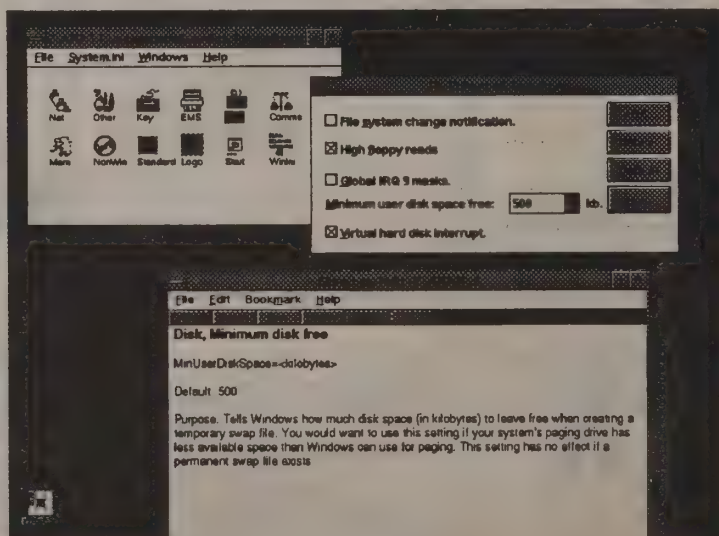
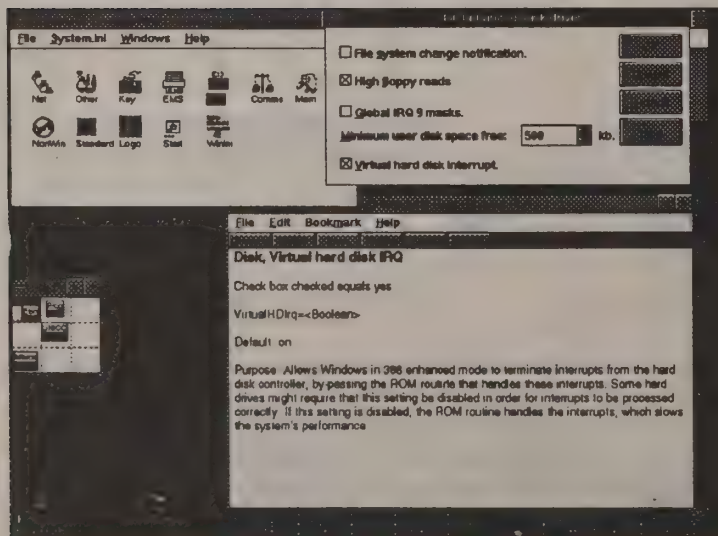
- Select Windows applications to load automatically on startup.
- Fine tune keyboard defaults.
- Modify Win.ini on the fly—make changes take effect without restarting Windows.

- Give non-Windows apps more memory by adjusting Expanded Memory settings.
- Set port addresses and IRQs for all serial ports on the system.
- Control the size of the Windows swapfile to improve performance efficiency.
- Change the Windows startup screen.

Elana consists of a supplementary Windows Control Panel with twelve icons. You can control Network, Disk, Communications, Startup, Memory, Keyboard, and other settings by clicking on the appropriate icon. Each icon opens up a dialog box with a series of user defaults. You may click options on and off with the mouse, or type in numerical settings. Elana saves any changes made automatically by writing them into the Win.ini and System.ini files. Elana's control options can also be accessed from pull-down menus. Each control option opens a dialog box; each dialog box contains a help button. If you click on help, supplementary information is displayed for the parameter settings listed in the dialog box.

Elana is also great as a tutorial and browsing tool. You can use it to

Elana is truly a worthy and much-needed supplement to the Windows Control Panel. If I were Bill Gates, I would buy this program and include it with every copy of Windows!



Elana makes it easy and painless to configure your Windows setup.

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486-33/64K	858
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386-25	**
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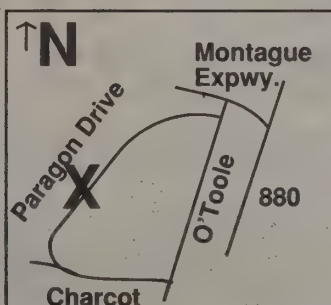
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MICROTIMES

Advanced Windows setup may defy even the most adventurous navigators. The control panel allows for installation of printers, and the setup of basic operating defaults. But if you want to adjust the mechanics of Windows' memory usage, disk usage, or I/O port settings, it's not so easy.

teach yourself more about the inner workings of Windows. You can select options at random, calling up help on a variety of esoteric parameters. Each help screen displays a short essay on the purpose of the selected System.ini parameter and a suggested setting. For example, if you browse through the disk options, you may discover a control for the size of Windows' temporary disk swapfile. You can designate the minimum space to be left on your hard disk after Windows sets up its temporary swapfile, or a maximum size for the file. The help dialog explains this option and gives an example of when you might want to use it. (If your hard disk space is scarce, you may want to ensure that Windows will leave more than the default 500K for file storage.) You can reserve 2MB on the disk for data files by typing the number into the dialog box.

You can also regulate the swapfile by setting a maximum paging size. Why would you want to do this? Because on some systems, Windows' performance is actually slowed down by a large swapfile—it makes more virtual memory available, but when programs actually use it, the intensive disk accesses make them really sluggish. (If Windows is configured with a permanent swapfile, it overrides the temporary swapfile settings, but many systems don't permit Windows to use a permanent swapfile.)

If you frequently adjust Windows parameters on the fly, you know that you have to quit Windows and restart the program for changes to take effect. Elana lets you avoid this. The current settings for Win.ini are saved in a RAM buffer. Elana's "flush Win.ini cache" option forces the system to reread the Win.ini file and incorporate any new modifications. This is useful if you want to save the desktop defaults at any given time, but continue working.

Ordinarily, Windows displays a startup logo that has been incorporated automatically into Win.com. The default Windows startup screen is actually a bitmapped image in Compuserve's RLE (Run Length Encoded) format. You may find the image as VGALOGO.RLE in the \Windows\System directory. With Windows 3.0, Elana can switch the startup screen. This is accomplished by copying a new file in RLE format to Win.com. To substitute the startup screen, you can use one of the RLE screens

Continued on page 197

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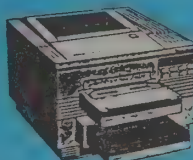
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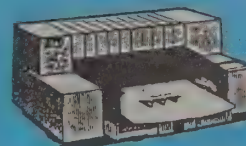
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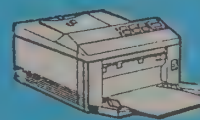
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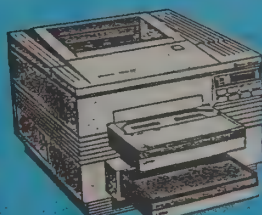
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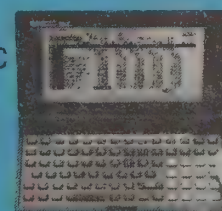
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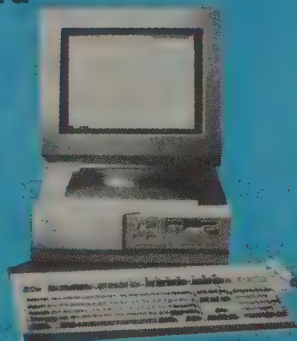
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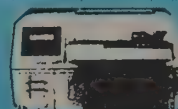
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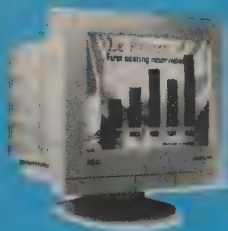
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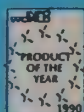
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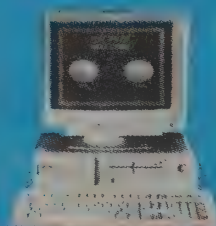
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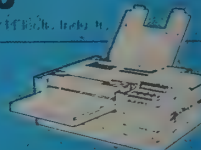
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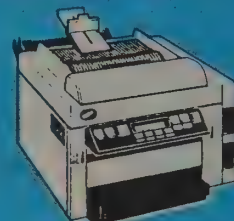
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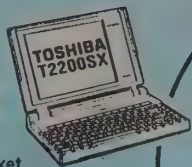
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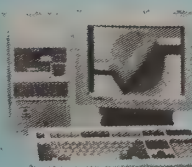
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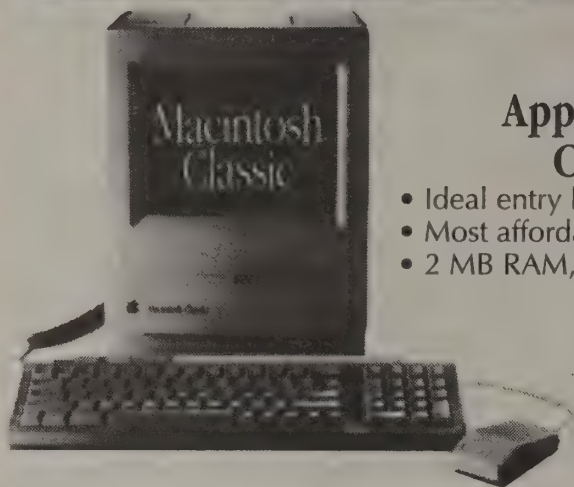


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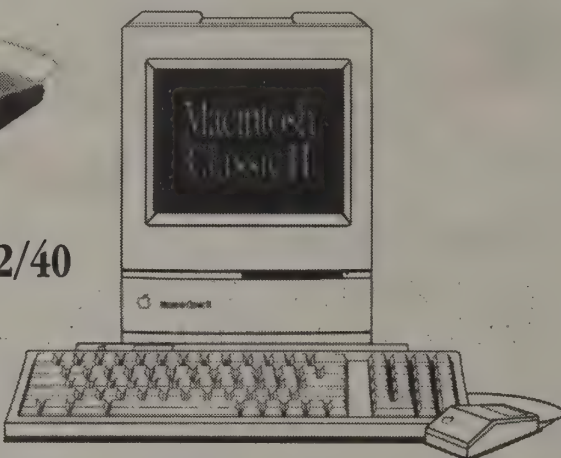
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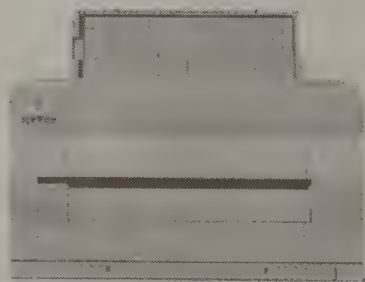
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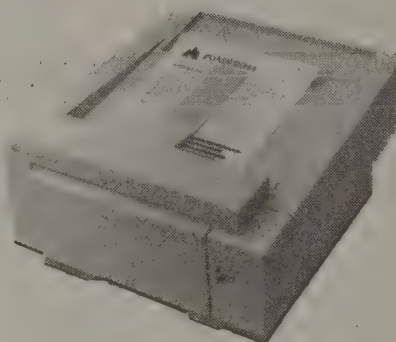


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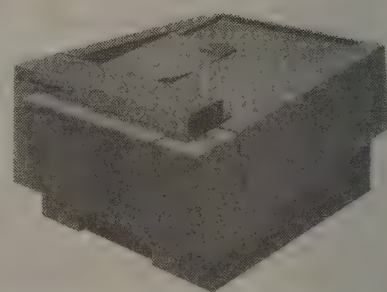


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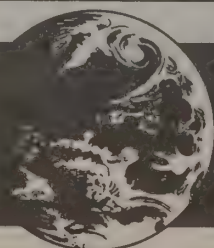
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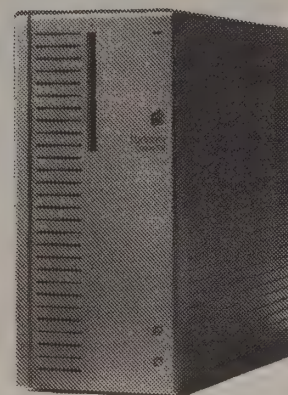
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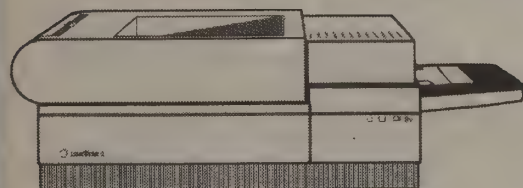


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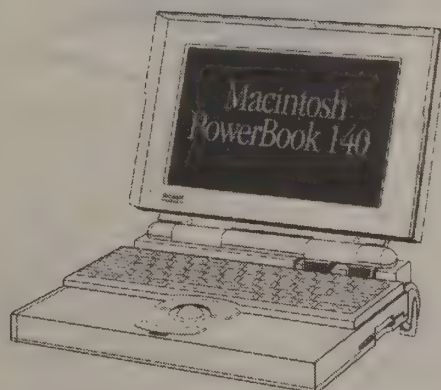


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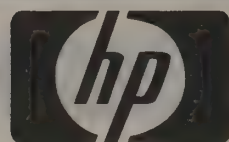
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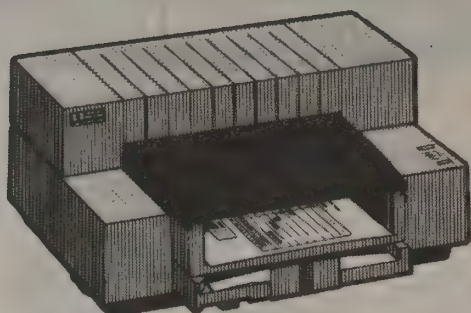
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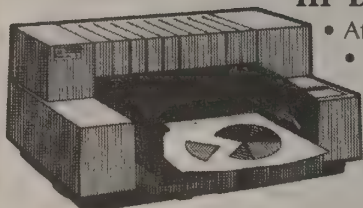
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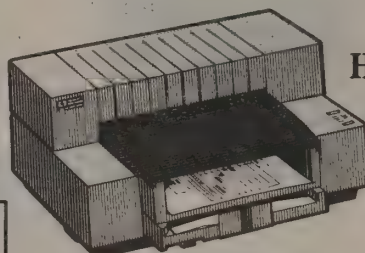
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- Supports leading software applications including Windows 3.0
- 3-year limited warranty

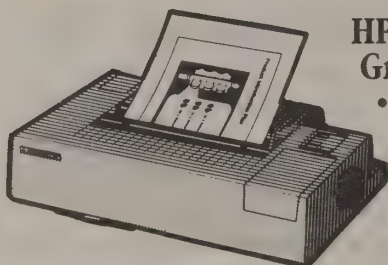
729.



HP DeskWriter C Printer

The new HP DeskWriter C adds color capacity to an already famous laser-quality black output. It's compatible with popular Macintosh® software and your budget.

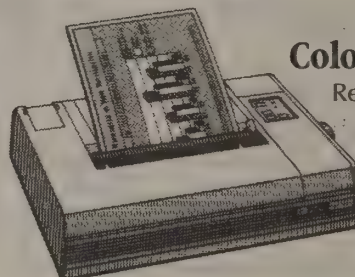
729.



HP PaintJet Color Graphics Printer

- High quality color charts & graphics
- PC or Macintosh® compatible
- Wide range of software support.

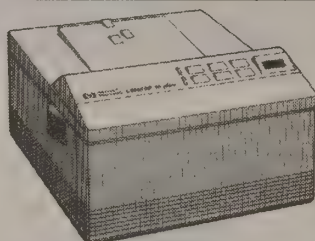
829.



Color Me Brilliant HP PaintWriter

Reports and presentations achieve their greatest impact in color produced by the HP PaintWriter printer. Prints on paper or transparency for maximum versatility. Compatible with Macintosh® color computers.

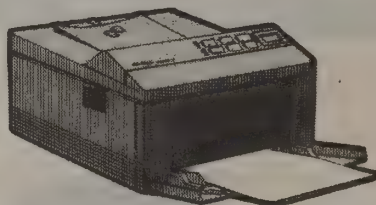
829.



HP LaserJet IIP *plus* Printer

- High-quality, 300 dpi text and graphics
- Compact, desktop size
- Prints 4 pages per minute
- Compatible with all major software packages
- Optional 250-sheet paper cassette for dual-bin printing

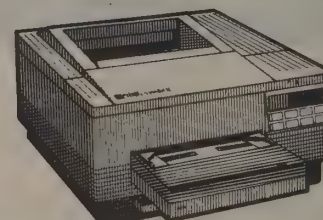
829.



HP LaserJet IIP PostScript Printer

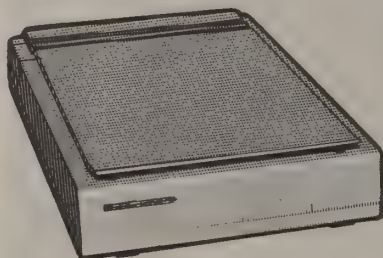
- Mac or IBM compatible
- True Adobe® PostScript with 35 typefaces
- Built-in Local Talk interface
- Easy to use—"plug and play"
- Compact, desktop size

1475.



HP LaserJet III Printer

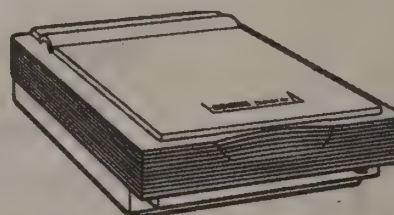
- Now Hewlett-Packard LaserJet Printers are PC or Macintosh® compatible
- AppleTalk® compatibility with optional interface
- Dependable HP performance



HP ScanJet Plus Scanner

- 256 grey scale levels (8 bit) for high-resolution images
- Wide range of contrast & intensity control
- PC or Macintosh® compatible
- Price includes interface.

1149.



HP ScanJet IIc

The new HP ScanJet IIc gives you 256 levels of gray or 24-bit color professional quality documents. Supports IBM AT-compatible PCs, MicroChannel or Macintosh® personal computers.

Starting At **1495.**

Price includes interface



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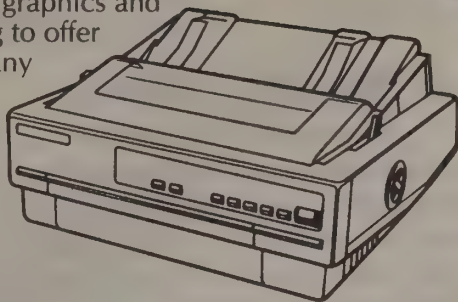
EPSON®



LQ-570

This new 24 pin printer utilizes scalable fonts, enhanced graphics and advanced paper handling to offer more performance than any printer in its class at an affordable price.

259.

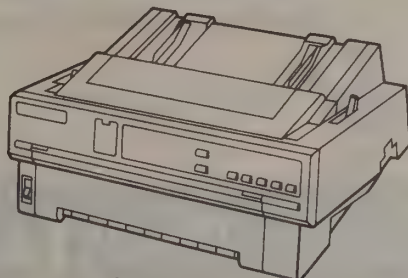


FREE Epson Approved Parana Ribbon With Every Printer Purchase

LQ-870

This new 24 pin printer is a major step forward in printer technology with high speed, and high performance that sets a new industry standard for quality with scalable fonts.

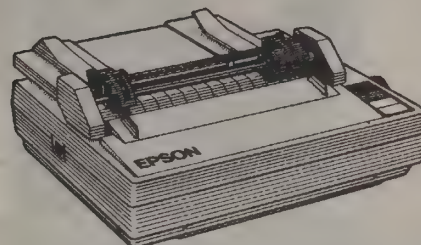
469.



LX-810

- 9 pin • SmartPark™ paper handling
- 200 CPS super draft
- 30 CPS NLQ
- High resolution graphics.

159.



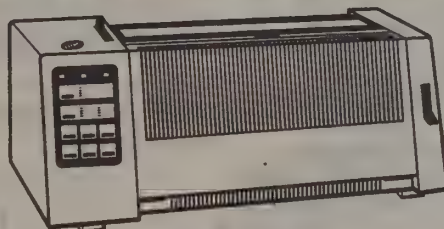
LQ-1170 Wide Carriage Model.....**615.**

NEW PRINTERS FROM IBM®

IBM® PPSII 2380

IBM introduces 2 new 9 pin printers that can print crisp, six-part forms and thick paper stock with no problem using straight paper path technology. Solid and reliable, these printers perform flawlessly.

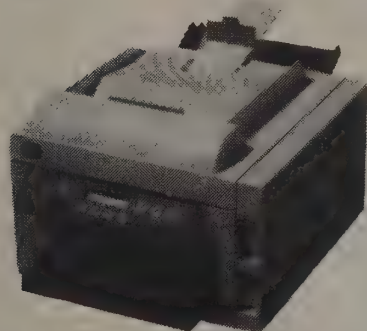
2380 Narrow Carriage**315.**
2381 Wide Carriage.....**455.**



IBM® PPSII 2390

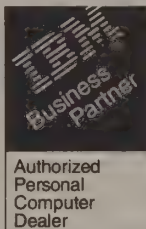
IBM introduces 2 new 24 pin printers for letter quality printing at high speed. Durable and reliable, these printers feature a straight through paper path with multiple feed options.

2390 Narrow Carriage**325.**
2391 Wide Carriage.....**465.**



IBM® LaserPrinter 6
6 pages per minute
Model 4029020

1485.



IBM® LaserPrinters 6 & 10

At 6 or 10 pages per minute with Print Quality Enhancement and Scalable Fonts, these printers outperform the rest. Paper handling includes a 200 sheet input tray with optional 500 sheet drawer and 75 piece envelope feeder. When you add the optional PostScript™ and 4 MB of memory this printer provides the most affordable 600 x 600 dots per inch technology available today. HP PCL4 compatible and optional PCL5.



IBM® LaserPrinter 10
10 pages per minute
Model 4029030

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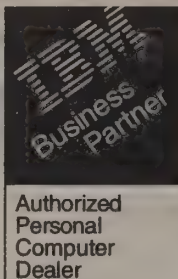
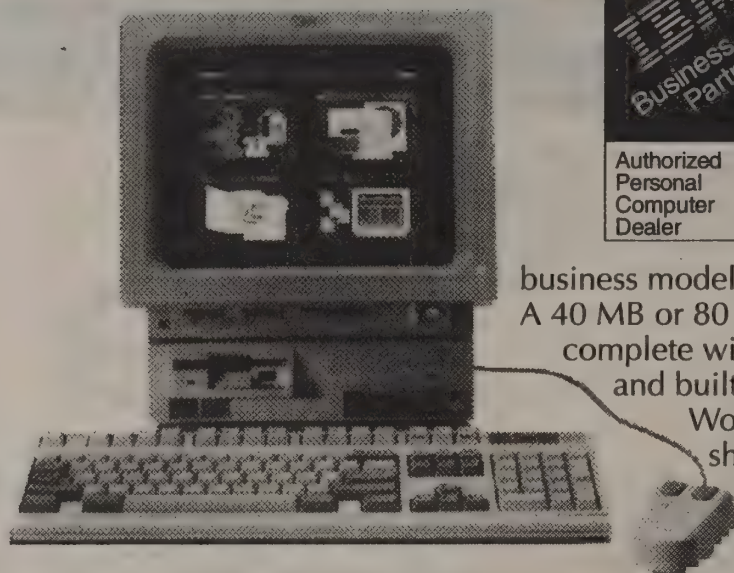
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The new IBM PS/1 386 SX achieves the exceptional. A home machine with the power of a business model, this computer operates at 16 mhz with 2 MB's of RAM. A 40 MB or 80 MB hard drive stores all your essential data. Comes complete with VGA PhotoGraphic™ color display, keyboard, mouse and built in 2400b modem. Plus you get IBM DOS, Microsoft Works® and 3 months FREE Prodigy for on line home shopping, banking, travel arrangements and more.

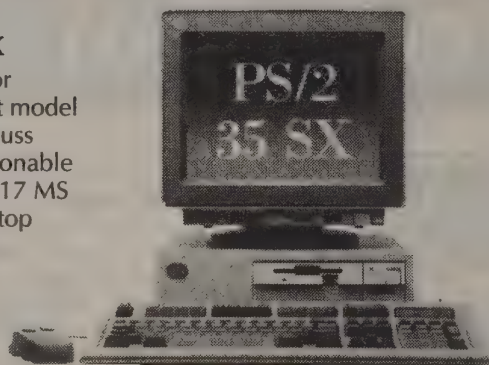
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PS/2 NOW AVAILABLE IN ALL STORES

IBM® PS/2® 35sx

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Monitor extra.

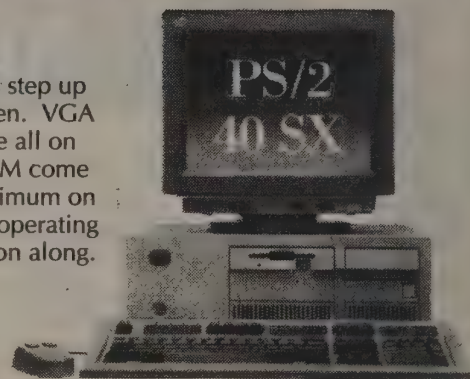


1649.

IBM® PS/2® 40sx

For more expansion capabilities step up to the PS/2 40sx with 5 slots open. VGA hard drive controller and I/O are all on the motherboard. 2 MB's of RAM come standard with up to 16 MB maximum on the system board. An 80386sx operating at 20 Mhz speeds every operation along.

Monitor extra.

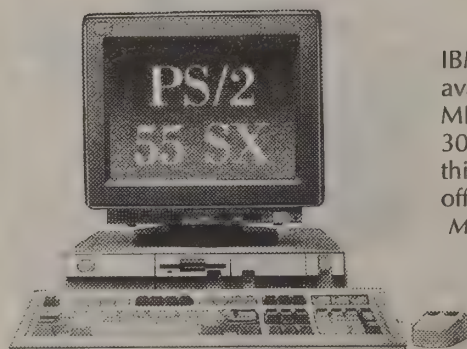


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IBM's best selling PC is now available at a very special price. 2 MB's of RAM, VGA on board and a 30 MB to 80 MB hard drive make this system a hot home or home office unit.

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STARTING AT

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Full featured, fast and flexible, the L40sx is IBM's new no compromise notebook PC. 2 MB of RAM expandable to 18 MB, VGA display, 20 Mhz 80386sx processor and 60 MB hard drive make this system an outstanding choice for the business traveler.



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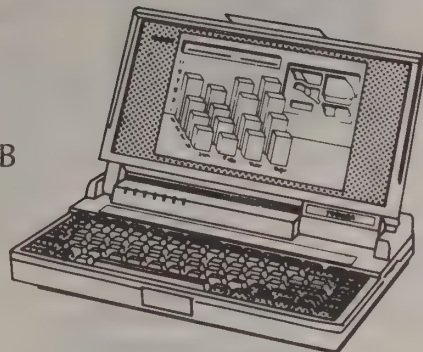


TOSHIBA NOTEBOOKS

Toshiba T1000LE

Toshiba's 6.5 pound notebook PC that has it all. A 20MB HDD, a 3.5"/1.44MB floppy drive, a terrific display and keyboard.

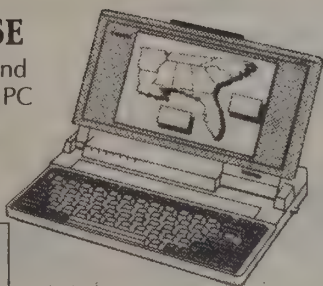
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Toshiba T1000 SE

Toshiba's affordable and easy to use Notebook PC for today's business-person on the move. Plenty of comfortable features.

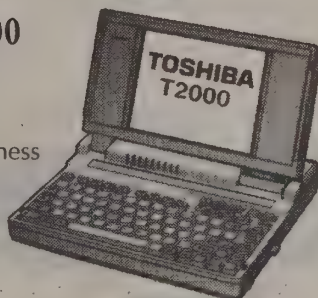
599.



Toshiba T2000

The T2000 is Toshiba's most affordable VGA notebook for business and professional users.

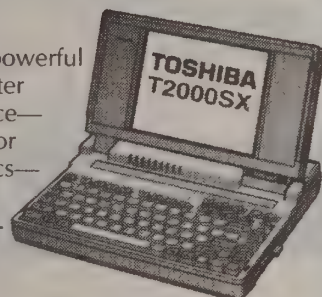
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Toshiba T2000SX/40

- Toshiba's most powerful notebook computer
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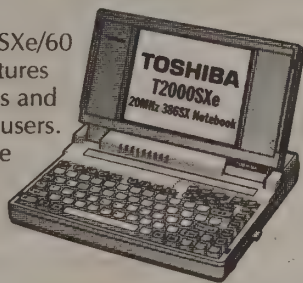


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Toshiba T2000SXe/60

The Toshiba T2000SXe/60 offers advanced features required by business and professional power users. Time now to replace your desktop.

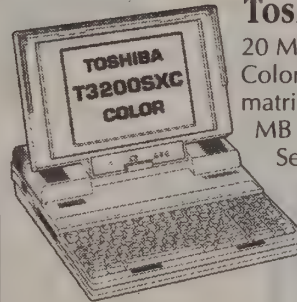
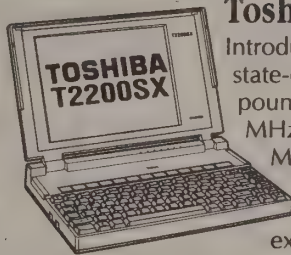
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Introducing the T2200SX—state-of-the-art features in a 5.5 pound notebook format! • 20 MHz, 386™SX processor • 40 MB or 60 MB hard drive • 1.44 MB disk-ette drive • 2 MB RAM expandable to 10 MB • VGA display with 16 gray scales

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Toshiba T3200SXC

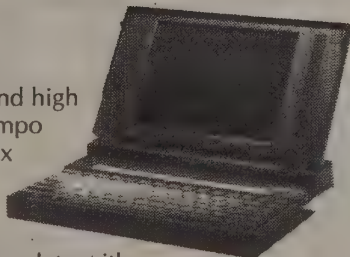
20 MHz 80386™SX CPU. Color TFT-LCD active matrix VGA display. 120 MB hard disk drive. See one in our Berkeley Store.

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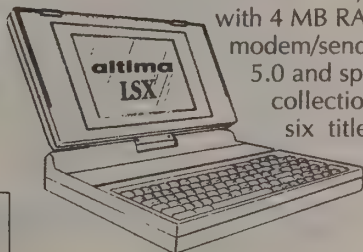


2195.

altima LSX

Award Winning

386sx-20 mhz, 60 MB HD with 4 MB RAM, 2400b modem/send fax, MS-DOS 5.0 and special software collection consisting of six titles.

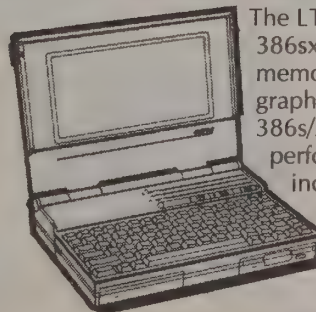


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The LTE 386s/20 uses a 20 mhz 386sx processor with cache memory design and a 16 bit graphics controller, the LTE 386s/20 packages this optimal performance in a 8.5 by 11 inch PC weighing 7.5 lbs.



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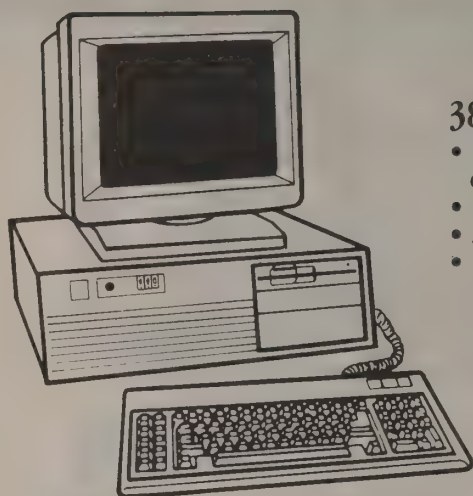
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- 1 MB RAM, expandable to 32 MB
 - 64k cache
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 - 2 serial 1 parallel port
- Monitor, display card extra

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 - 1.2 MB floppy drive
 - 1:1 hard drive controller IDE
 - 64k cache
 - 101 keyboard
 - 2 serial 1 parallel port
- Monitor, display card extra

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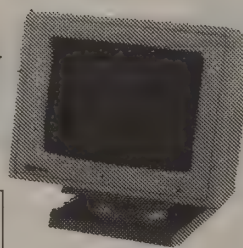
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- 14" amber flat screen
- 720h x 350v with tilt and swivel.

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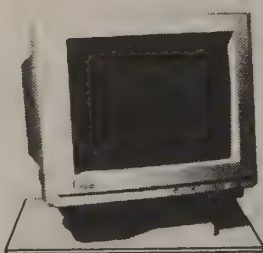
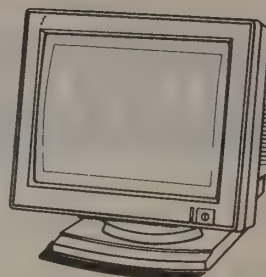


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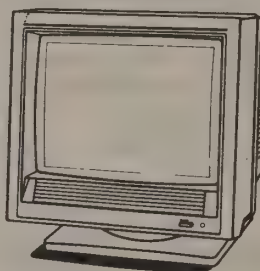
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- 14" analog multi-frequency
- 640 x 480, .51 mm dot pitch

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- 1024 x 768

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SONY

Sony 1320 VGA

- VGA color monitor
- Analog input
- .25mm aperture grid

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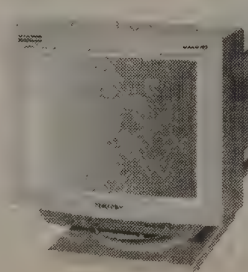


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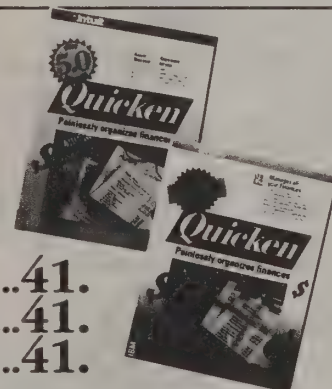
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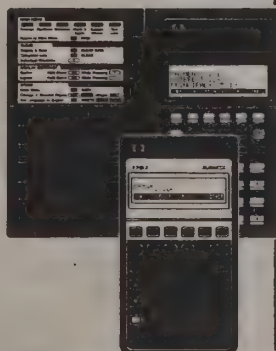
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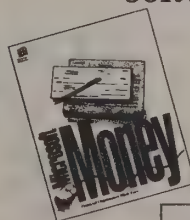
HP 19BII Financial Calculator

149.

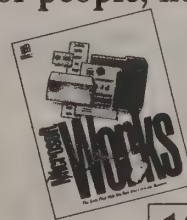


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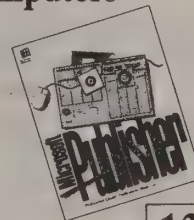
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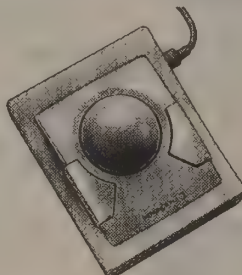
KENSINGTON



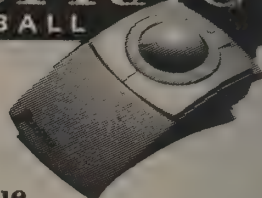
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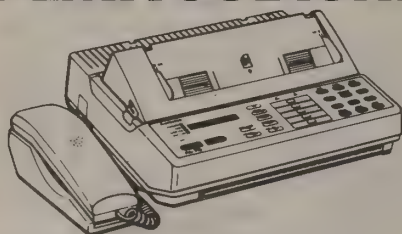
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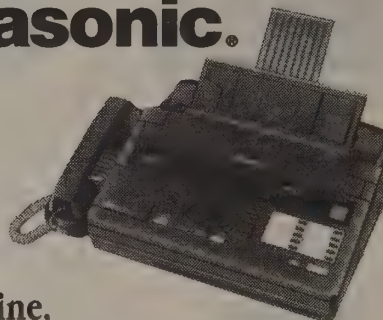
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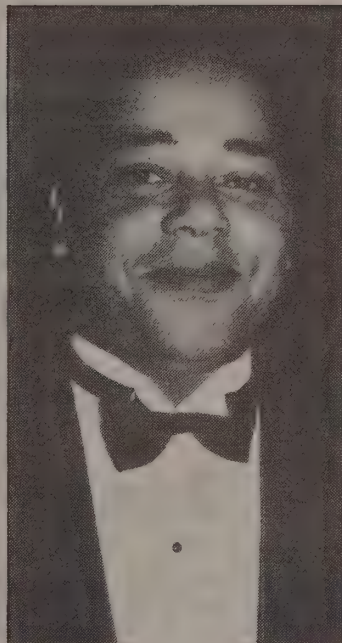


WHOLE EARTH ACCESS

Helping Companies Go Global

ATRE Conference Fosters Pacific Rim Connections

By Mary
Eisenhart



ATRE chairman Alex Vieux

"The biggest growing consumer market in the next ten years is Asia. Both companies and individuals are going to buy more computers, more software, more networking tools.

"I hear a lot of pessimism out there. But they want to have American products. The glamour of American products is as important to computer buyers as the glamour of the French product for perfume buyers. People love American computer software. Workstations sell like crazy—ask Sun. They're making 30%, more than that, out there. There's a big opportunity. This is a growing industry—it's not a mature industry yet."

—Alex Vieux

Global business is clearly a significant trend for the computer industry. Established giants like Microsoft, Apple, and Novell now do the majority of their business outside the US; some vendors—e.g. Commodore and Atari—have a far greater presence in foreign markets than in their home country. And, for West Coast companies in particular, the Pacific Rim presents challenges and opportunities.

Alex Vieux knows high-tech and world markets. The son of a French diplomat, he founded two Silicon Valley-based software startups and serves as an advisor to the French Minister of Industry. One day a few years back, while attending one of the relatively numerous industry summit conferences in the US, he realized that while American companies could take advantage of any number of such events, there was a complete lack of them in the European and Asian areas. So he decided to do something about it, and founded ETRE, the European Technology Roundtable Exhibition. After two highly successful European conferences that brought together CEOs and other top executives from US companies (e.g. Microsoft's Bill Gates, Borland's Philippe Kahn, Oracle's Larry Ellison, and IBM's Jim Cannavino) with their European counterparts—and with leaders of small startups on both continents—Vieux is now launching a new conference in Japan to address the emerging needs of Pacific Rim markets.

ATRE, the Asian Technology Roundtable Exhibition, is scheduled for May 31–June 3, at Club Med in Sahoro, Japan. As with ETRE, participants will be carefully selected from among the pool of applicants to ensure a good balance of technology, as well as a synergy-enhancing mix of established and younger companies, large and small. Discussion topics at the sessions will include such issues as international sources of financing, the evolving relationship of consumer electronics and the computer industry, and tips on forming strategic alliances—a key element in world-market success. The

schedule will also include plenty of time for private meetings—to say nothing of a karaoke party (an important part of Japanese business culture!).

Vieux explains, "We foster the spirit of cooperation among companies engaged in worldwide competition."

Particularly for smaller companies who, in other times, wouldn't have even considered their global market opportunities, the conference offers an unprecedented opportunity to show their wares to world industry leaders and find strategic partners to help with their expansion into other countries, in a setting conducive to in-depth conversation rather than sound bites. (Not to mention cutting through the red tape—Vieux tells of an entrepreneurial ETRE participant's delight in being able to get direct feedback on his company's prototype product from Bill Gates.)

For companies exploring their global opportunities, particularly in Asia, Vieux counsels against the American preoccupation with speed. Don't be in a hurry, he says. Do your homework. "Try to know if the people you're talking to are the best people in the market—shop around. When you go to buy a computer, you shop around. When you go to sell your computer, you should shop around even more."

"Don't be shy. If you have a great product, people will want it. Be there for the long run. Create your own roots and contacts."

Also, it's important to be aware of and respect the differences in national cultures. "To talk to a Korean as if you were talking to a Japanese is a big mistake. To talk to a Taiwanese as if you were talking to a Korean is a big mistake. What makes them tick is different, just as what makes an American tick is different from what makes a Canadian tick."

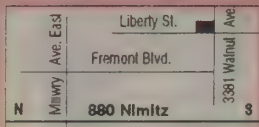
Going global calls for entirely different strategies from success in the US market, and, says Vieux, those who manage to do as the Romans when in Rome will prosper. It's a process of finding the right partners and capitalizing on your respective strengths.

"We are not in a deficit position vis-a-vis any Asian manufacturer," says Vieux, "either in creativity, or in money, or in effort, or in discipline. We just have to adapt the process to the market, and once we do it, we're going to succeed." ■

For information about the ATRE (or ETRE) conferences, contact DASAR Inc. at (415)321-5544; fax (415)321-5597.

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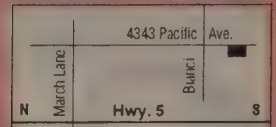
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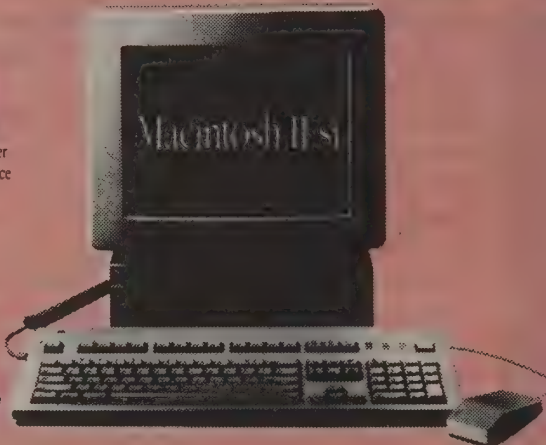
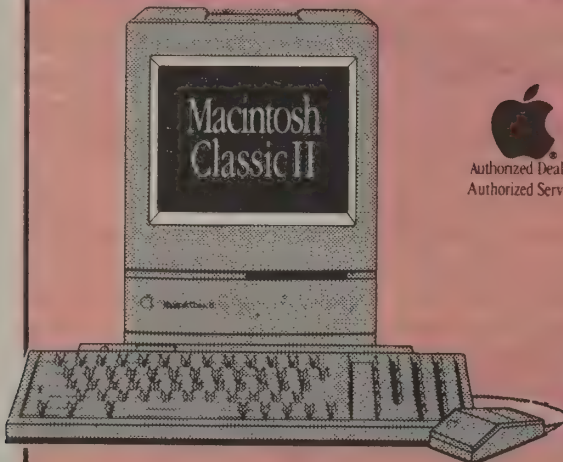
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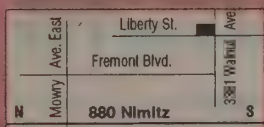
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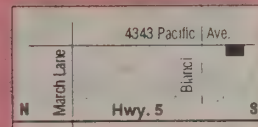
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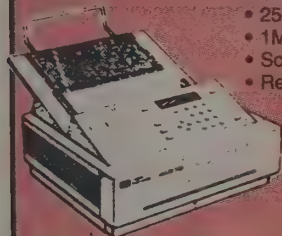


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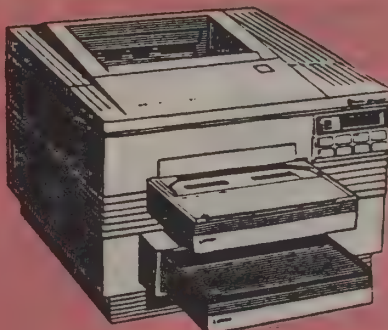
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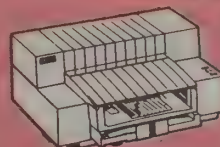
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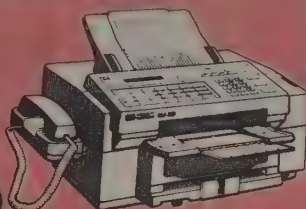
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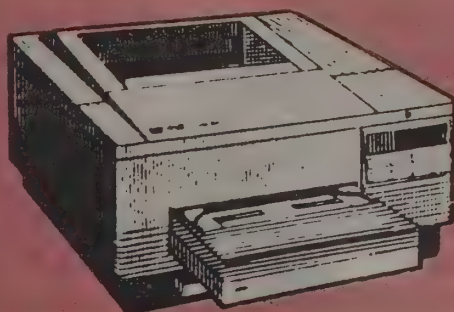
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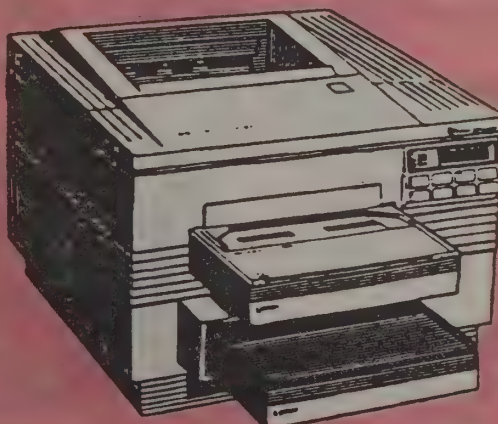


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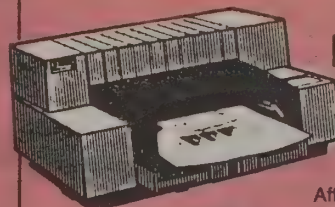
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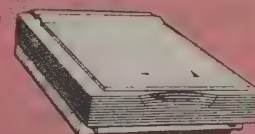
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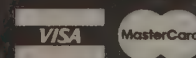
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Your First Computer

Integrated Software: Trap Or Bargain?

Integrated applications are the Swiss Army knives of software. They offer a versatile set of standard tools in one compact and relatively inexpensive package.

AppleWorks (v3.0, \$169 retail, published by Claris), for the Apple II series, was one of the first successful programs of this kind—it included a word processor, spreadsheet, and database sharing a common user interface. You could even exchange data among the three modules, copying numbers out of a spreadsheet to paste into a word processor document, for example.

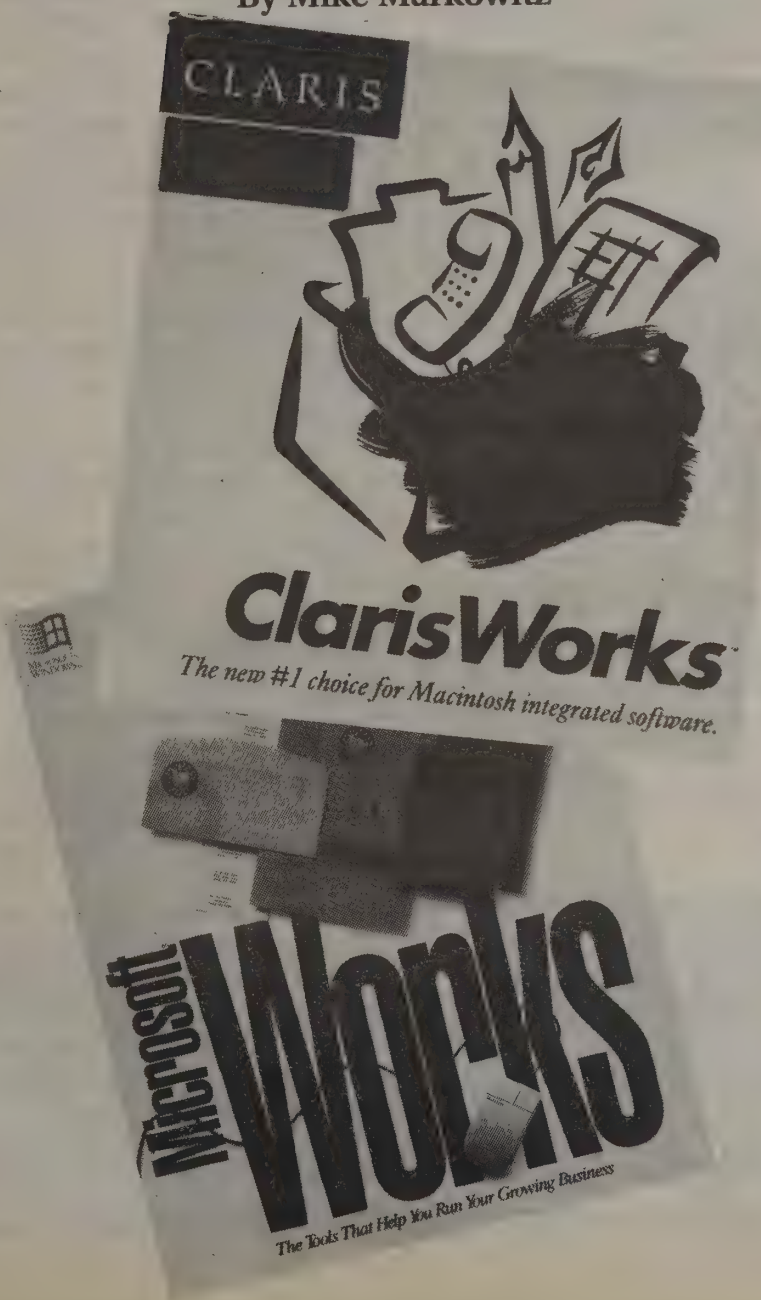
MICROSOFT WORKS

Microsoft Works for MS-DOS (v2.0, \$149 retail) offers a similar degree of functionality for PC users. Basically a text-based program, it uses a mouse very effectively. With total worldwide sales of over 2.5 million copies, Works is a real success story, although power users, reviewers, and corporate types may sneer at its limited range of features.

Microsoft Works for Macintosh (v2.0, \$295 retail) adds a telecommunication program and some simple drawing tools to the basic word processor-spreadsheet-database formula. The program has a usable Mail Merge feature, and provides excellent support for printing mailing labels. Although data import/export options are severely limited, there is a very good "Works-Works Transporter": an Apple File Exchange translator that can convert AppleWorks files to the corresponding MS Works formats.

Microsoft Works for the Mac has some features that are less than perfect

By Mike Markowitz



for beginning users. The program makes extensive use of "hierarchical menus" (you have to pull down, then pull out—an exercise in advanced mouse control). The drawing function is limited to a few basic tools and eight colors, and operates as an "overlay" on top of your text or data.

The application itself takes up only 590K on disk. Dictionaries and Help add another 460K, and Works demands only 768K of RAM for itself. Microsoft prices the Macintosh version of Works very aggressively—a typical mail order price is \$165, with college student prices as low as \$82. Some resellers even bundle the program with new low-cost Macs.

Microsoft has done a good job getting out "maintenance releases" of Works that will run on new Mac systems, but the program is long overdue for a major upgrade that will add System 7 functionality.

Microsoft Works for Windows is a completely new (released September 16, 1991) and very ambitious package designed to run under Microsoft Windows 3.0. Versions in French, German, French Canadian, Italian, Dutch, Finnish, Norwegian, Swedish, Danish, Hungarian, and Czech have been announced.

The word processor includes a 120,000-word spell check dictionary and 190,000-word Thesaurus. It can import or export documents using the file formats of Microsoft Word and WordPerfect. The spreadsheet is similar to Excel, with a highly functional Toolbar and the wonderful Autosum feature. The database can handle up to thirty-two thousand records. The inte-

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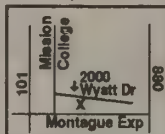
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Integrated software is a good option for those repelled by the high cost of full-featured software, overloaded with esoteric features most users will never touch.

grated drawing program is a vast improvement over the feeble draw overlay function found in Works for the Mac.

One of the best features of the program is a colorful interactive tutorial, which starts from the very basics, and guides you step-by-step through real tasks using the actual program. The comprehensive online Help system lives up to the very high standard set by Windows 3.0 itself. All these features demand a lot of disk storage—with everything installed, the program occupies 2.7MB on disk.

Works for Windows has a list price of \$199, but the upgrade for users of the DOS version is \$79, and a \$99 academic edition will be offered to schools and colleges.

Works for Windows was designed to integrate smoothly with two other low-cost Windows 3.0 programs aimed at the home/small-business user: Microsoft Publisher and Microsoft Money.

GREAT WORKS

Symantec's Great Works (\$299 list) includes eight modules: word processor, database, spreadsheet, charting, painting, drawing, outlining, and telecommunication. The package includes an extensive collection of file translators.

The word processor provides spell checking, multiple columns, and mail merge. The idea of separate paint and draw modules is odd, considering that programs like SuperPaint (Aldus) and Canvas (Deneba) can provide paint and draw tools in the same window. The communications module is a no-frills terminal program with no scripting feature.

CLARIS WORKS

The success of the "low-cost" Macintosh models (LC, IIsi, and Classic) expanded the market for low-cost Mac software. The release of the new Mac PowerBooks emphasizes the need for compact applications that deliver a lot of functionality without requiring vast amounts of memory and storage. Claris Works (v1.0, \$299 retail) is well designed and positioned to meet these needs.

Claris Works integrates different functions using a unique "frame-based" design. When you open a new document you have the choice of word processor, spreadsheet, database, graphics, or communications, but within most document types you can open up "frames" of another type. For example you can open a spreadsheet frame within a word processor document by simply clicking on the cell cursor tool and dragging out a rectangle (filled with rows and columns) anywhere on the page. You can do very effective page layout by opening a graphics document and then linking a series of text frames.

The program itself, written by Robert Hearn and Scott Holdaway, takes up less than 600K on disk and will run comfortably in only 900K of RAM. It can share dictionaries, translators, and other resources with other Claris applications, which also helps to conserve disk space.

The word processor resembles MacWrite II. To get a word count, you have to do a spell check, and the program cannot count lines, paragraphs, etc.

The drawing module resembles MacDraw Pro. The number of colors

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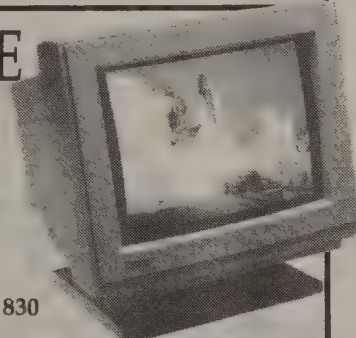
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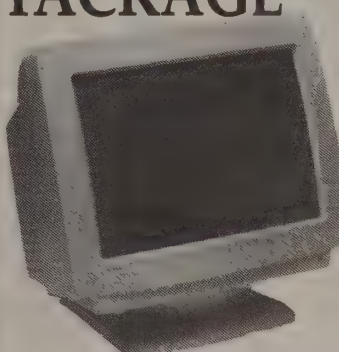
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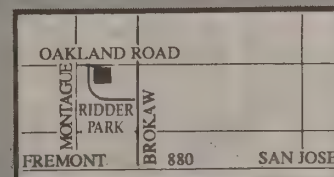


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For most beginners, a good integrated software package will provide 90% of what you need for less than half the cost of buying three or four separate applications.

available (16 or 81) depends on your Control Panel setting.

The database resembles FileMaker Pro. The spreadsheet resembles Excel or Resolve. Seven different types of 2-D charts can be generated simply by highlighting a range of spreadsheet cells and clicking on a few simple options.

The Communications module provides for Log-on macro recording, which is not nearly as useful as a full scripting language, but it certainly helps. The communications module is preset for VT102 terminal emulation and XMODEM file transfer, but there are extensive options for customizing the settings.

The HyperCard-based Help system is very good and documentation is excellent. For example, the Communications Handbook provides a very clear explanation of how to use a null-modem cable to directly connect two computers' serial ports to transfer files.

BEAGLE WORKS

Beagle Bros. of San Diego has been the leading publisher of add-on modules for AppleWorks. The long-delayed **BeagleWorks** is their first major venture into Macintosh software. When it ships, it will be the first integrated Macintosh software package with full System 7 functionality, including Publish and Subscribe (Apple's way of linking changes in an original document to copies of that document even in other applications or over a network). Requiring only 1 MB of RAM, the program also runs under System 6.

The program uses a Tool Bar that looks like a long, narrow floating palette. Text can be automatically wrapped around an irregularly shaped

graphic (a feature commonly found only in page layout programs). The paint and draw modules support up to 256 colors.

BeagleWorks includes seven modules: word processor, database, spreadsheet, chart, paint, draw, and communications. Information on file import/export capabilities was not available in time for this review.

BeagleWorks will have a list price of \$299, but owners of AppleWorks 3.0, AppleWorks GS, Microsoft Works, and certain other programs are eligible for a \$99 upgrade offer.

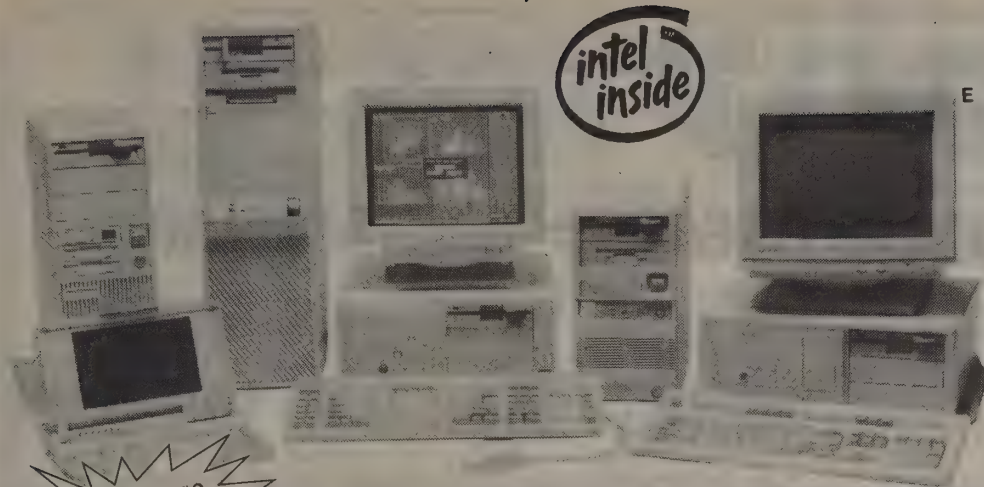
SUMMARY

Integrated software is a good option for those who are repelled by the high cost of full-featured software, overloaded with esoteric features most users will never touch.

Before deciding on a package, you should be sure that it supports the particular file formats your environment demands—for example, if you have to exchange data with people who only use dBASE or WordPerfect on MS-DOS systems. A skilled accountant could probably do very good income tax work with the low-end spreadsheet in an integrated package, but most users would do much better with one of the many specialized, up-to-date tax programs.

For most beginners, a good integrated software package will provide 90% of what you need for less than half the cost of buying three or four separate applications. When you hit that other 10%, you'll be on the way to power userhood (and you will probably have outgrown your first computer). ■

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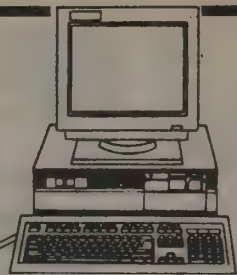
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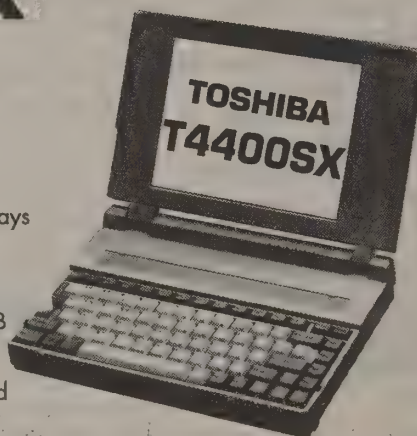
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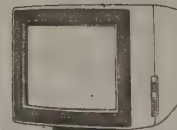
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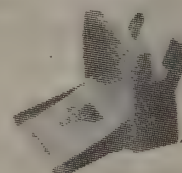
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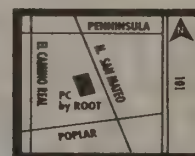
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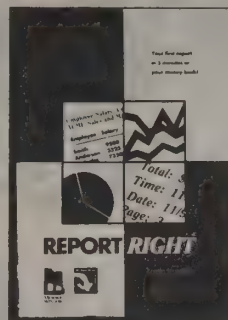


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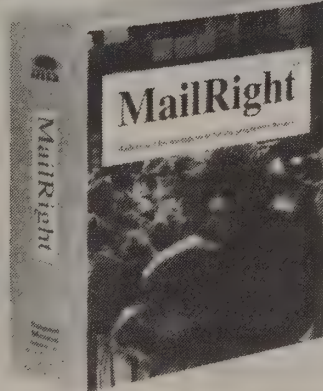
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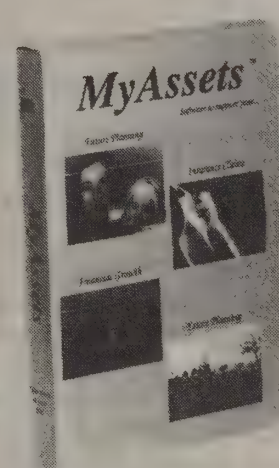
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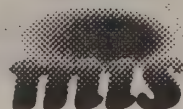
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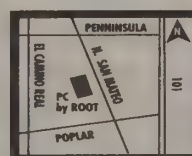
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Multi-Lingual Scholar appears to be a simple, graphically based word processor until you see the menu choice "language." Click on it, and you can choose among up to ten languages. (In fact, you can have more loaded at once, but only ten will appear on this menu.) Each language will have its own typefaces, direction of writing, and keyboard layout. You can use any or all of the languages in the same document.

In the default version, which you get when you order Multi-Lingual Scholar without an optional font package, you have the Latin alphabet with all the diacritical marks you need for languages which use

them. You also get Hebrew (Biblical and modern, with King David and Frankruhl typefaces, and special characters for Yiddish), Arabic/Persian, Cyrillic (for Russian, Serbian, Ukrainian, etc.), and Greek (Biblical and modern) with the addition of mathematical symbols. That is the *basic* package.

You can also get Bengali, Burmese, Devanagari, Gujarati, Gurmukhi, Inuktitut, IPA, Korean, Lao, Malayalam, Nepali, Pushtu, Sanskrit, Sinhalese, Tamil, Telugu, Thai, Urdu, and Vietnamese (Romanized) from Gamma Productions, the maker of Multi-Lingual Scholar. From third-party vendors you can buy Amharic, Syriac, Egyptian hieroglyphics, Coptic, Aramaic, Phoenician, and Ugaritic. Yes, you can compose in the cuneiform Ugaritic alphabet, written on clay tablets 3000 years ago.

When you complete and send in your registration, you get two disks for free from among those made by Gamma Productions—additional languages or additional fonts for a standard language. A third font disk rewards you for doing the tutorial.

TRUE SUPPORT FOR MULTIPLE LANGUAGES

Instead of just building a font for a popular word processor, as many "foreign-language" products do, the makers of Multi-Lingual Scholar have designed a polyglot word processor from the ground up. It was created to use multiple languages—as long as they are horizontally written—and the complexities of working with different orthographies were dealt with properly. It has also given you all the tools you need to configure the program "just so" for your own use.

In Multi-Lingual Scholar you can deal easily with languages which run from left to right (Latin alphabet, Cyrillic languages like Russian, or Devanagari tongues like Hindi) and those which run from right to left (Hebrew, Arabic, Aramaic, Farsi, etc.) in separate paragraphs. Multi-Lingual Scholar recognizes the language you have chosen, and aligns the paragraph left to right or right to left as is appropriate. The

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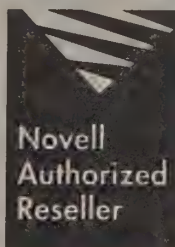
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first word determines the paragraph language.

But you can also mix languages in a paragraph or sentence and override the default choice. The documentation tells you how to begin a paragraph with a Hebrew or Arabic word, and still be able to use English for the rest of the paragraph. One can then enclose words, phrases, and sentences in other languages which use different alphabets, even different writing directions.

The program is designed to deal with the over- and under-written marks that many languages use in addition to their "main" letters. Arabic, Hebrew, and Devanagari alphabets all write special vowel marks that may appear above, below, after, or even before the consonant which precedes them in pronunciation. Multi-Lingual Scholar handles them flawlessly. Arabic/Persian, Hebrew, and Greek have different letter forms when the letter appears in different positions in the word. You can choose the letter form yourself, or let Multi-Lingual Scholar do it for you.

The program is also "smart" about language switching. If you have a document of Greek and English, you may be editing in Greek. If you move the cursor into a section of English text, Multi-Lingual Scholar automatically switches the working language to English. This means that you do not have to change languages manually.

Fonts are handsome, 300-dot-per-inch laser character-sets. The results look better than do many imported books. Proportional spacing is aware of "long-connectors" called *kashideh*. They are the horizontal extensions of letters that are used in Arabic-alphabet and Devanagari languages. You can choose to pad out space with *kashideh*, with spaces, or with both.

There are a number of different keyboard arrangements conventional in the world. Multi-Lingual Scholar offers the usual national typewriter keyboard layout for the country which uses the alphabet—such as the Government of India standard for Devanagari. It may also offer "sounds-like" layouts for a person used to the American Qwerty keyboard. With Hebrew, you can use a phonetic keyboard that types

Instead of just building a font for a popular word processor, as many "foreign-language" products do, the makers of Multi-Lingual Scholar have designed a polyglot word processor from the ground up.

the letter "Mem" when you type the letter "M," or you can use the Israeli typewriter keyboard. Multi-Lingual Scholar allows you to design your own keyboard layout for any language.

Export and import create special problems when you have to convert among languages. You can export in various ASCII codes. You will be able to export PCX files, the standard bit-mapped graphic format in the DOS world, when they have fixed a bug in the program. For Biblical scholars, CCAT is supported.

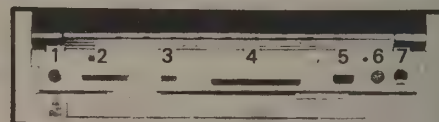
The current release of Multi-Lingual Scholar is v4, and a lot of experience and demands from various scholars and linguists have gone into this version. Spell-checkers are being built for the commoner languages. The program now has snaking and parallel columns. There are now multiple windows and full mouse support. You can use menus or hot-keys. There is an onscreen ruler calibrated in inches or centimeters—your choice. From the ruler you can also click on icons to choose tabs, line spacing, and paragraph alignment.

One particularly welcome addition is the style sheet. As in a page-layout program, a style sheet can be used to set indentation, typeface, and line spacing. But in Multi-Lingual Scholar you can also use it to

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set language. A two-letter code can let the writer switch direction-of-writing, language, typeface, and line spacing all at once.

MLS comes with a remarkably complete font design program. If you are not content with the orthographies available with Multi-Lingual Scholar, you can make your own. With "Font Scholar," you can create fonts that work from right to left or from left to right, with variable widths at laser resolution. As with the main program, you can design "maps" that assign characters to different keys, and since you can have more than one map, you can have more than one keyboard for your new language. Font Scholar comes with Multi-Lingual Scholar at no extra charge.

Because of Font Scholar, new Multi-Lingual Scholar languages become available. Scholars and government people buy the program, and language facilities are designed for nationalities that have never before had a word processor. The Canadian government (for instance) bought the program to type the elegant Inuktitut glyphs used among the Eskimo. Because they did, you can buy Inuit from the makers of Multi-Lingual Scholar.

The program now has enough users so that this trend will continue. It is reasonable to assume that if a language is written alphabetically and horizontally, Multi-Lingual Scholar will eventually support it. Gamma Productions refers inquiries to you if you have created an MLS font.

WISH LIST

Well, what calls for improvement?

The program is so close to being a desktop publisher that its lack of support for included graphics is maddening. If it supported graphics and outline fonts, one could use Multi-Lingual Scholar to produce books and newsletters for the world.

Multi-Lingual Scholar does not now support ideographic languages like Chinese (ten thousand standard characters) or Japanese (1850 ideographs plus two syllabaries). It doesn't support vertically

The program is "smart" about language switching. If you have a document of Greek and English, you may be editing in Greek. If you move the cursor into a section of English text, Multi-Lingual Scholar automatically switches the working language to English.

written alphabetic languages like Manchu and traditional Mongol, or some alphabetic languages like Cambodian and Tibetan.

The program's export-to-.PCX function did not work properly. Gamma promptly acknowledged the problem, and said that anyone who registers will get a free correction. I did seem to lock up the program by telling it to print when the printer was turned off, but the problem turned out to be only a slow error message.

Don't let these bugs discourage you, because this is, on balance, an extraordinary program. If you need to use any of the supported languages, you will love Multi-Lingual Scholar. Everyone who has seen the program wants a copy. ■

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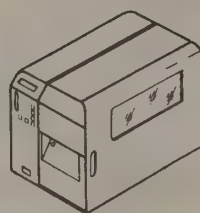
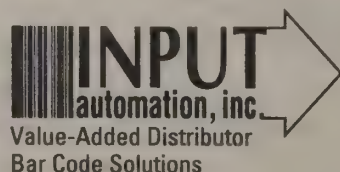
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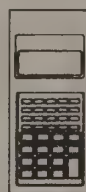
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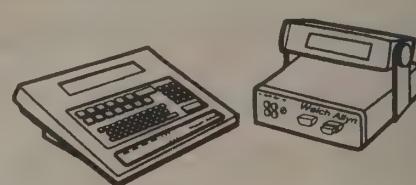
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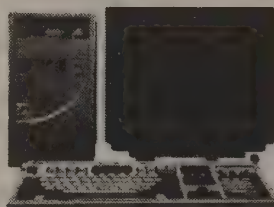
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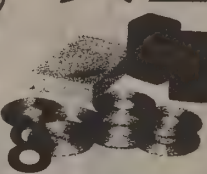
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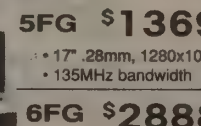
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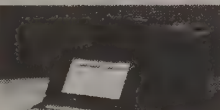
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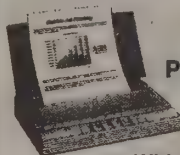


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- MS-DOS 5.0
- 1-year parts & labor

7 lbs!

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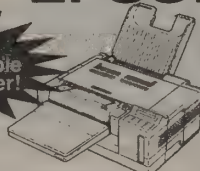
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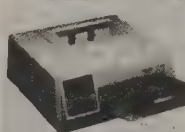
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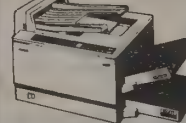
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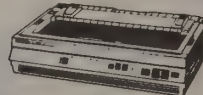
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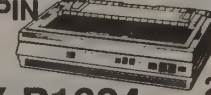
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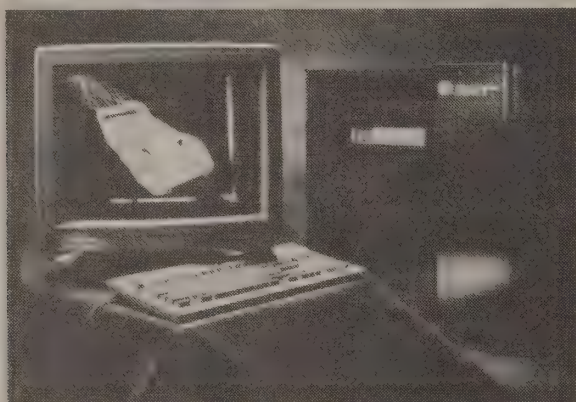
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New Products

WORKSTATION HARDWARE

SILICON GRAPHICS IRIS CRIMSON

The IRIS Crimson introduces a family of seven new single-user desktop systems that combine high single-processor computer performance with the industry's broadest range of graphics. The Crimson is the first system available based on the MIPS R4000 64-bit RISC processor.



The R4000, with an internal clock rate of 100MHz, offers balanced, high floating point and integer performance for optimal handling of a variety of applications. The Crimson family begins with the Crimson/S, an R4000-based server for advanced computation, and the

Crimson/Entry, which adds Silicon Graphics' entry graphics to create a cost-effective solution for applications requiring high X-Window, 2-D vector or 3-D vector performance, and for compute-oriented applications. At the other end of the spectrum is the Crimson/VGSX, which delivers SGI's top-of-the-line graphics with high-performance texture mapping. (IRIS Crimson systems start at \$27,900) Silicon Graphics, Inc., 2011 N. Shoreline Blvd., Mountain View, CA 94039-7311. (415)960-1980.

NEXTSTATION TURBO

With the announcement of NeXTstep 3.0, designed to run on computers powered by Intel's 80486 processor, NeXT has also introduced a Turbo version of its workstations. The family of Turbo workstations are powered by the Motorola 68040 processor running at 33MHz and offering 25 MIPS. In addition to the faster processor, these systems come with a 250MB internal hard disk, and users can choose RAM capacities ranging from 8 to 128MB. The NeXTcube Turbo starts at \$10,995 for a monochrome system with 16MB of RAM and a 400MB hard disk. The NeXTstation Color Turbo with 16MB of RAM and a 250MB hard disk starts at \$8995. NeXT Computer, Inc., 900 Chesapeake Dr., Redwood City, CA 94060. 1-800-TRY-NeXT.

PRODUCT UPDATES

- **Casady & Greene** released **Access Managed Environment (A.M.E.) v2.0**. A.M.E. is a comprehensive integrated security package for the Macintosh that includes multilevel security, continuous virus protection, and detailed activities logging. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908-1119. (408)484-9228.
- **Connectix** released **HAND-Off II v2.2.1**, its Macintosh file launching utility. Connectix Corp., 2655 Campus Dr., San Mateo, CA 94403-2520. (415)571-5100.
- **Dubl-Click Software** is shipping **MenuFonts 4.0**. Included with this new version are three bonus utilities: BigCaps, FontCharter, and FastFormatter. Current users can upgrade for \$20, plus \$5 shipping and handling. Dubl-Click Software, Inc., 9316 Deering Ave., Chatsworth, CA 91311. (818)700-9525.
- **GeoWorks Pro**, an upgrade for GeoWorks Ensemble, adds **Borland's Quattro Pro SE** spreadsheet to Ensemble's GeoWrite word processor, GeoDraw object-oriented drawing tools, GeoComm communications software, and the GeoManager file and personal information manager. GeoWorks, Inc., 2150 Shattuck Ave., Berkeley, CA 94704. (510)644-0883.
- **Intex Solutions** released an upgrade for **4-5-6 Link**, a file integration application that downloads and uploads mainframe data to and from Lotus spreadsheets. Formerly a memory resident program, 4-5-6 Link is now a true add-in that allows users to easily activate the program from a Lotus 1-2-3 menu. Registered owners may upgrade for \$145, plus \$5 shipping. Intex Solutions, Inc., 35 Highland Cir., Needham, MA 02194. (617)449-6222.
- **Neon Software** is shipping **NetMinder Ethernet v2.0**, its network analyzer for the Macintosh. Neon Software, Inc., 1009 Oak Hill Rd., Suite 203, Lafayette, CA 94549. (510)283-9771.
- **Parsons Technology's ViruCide 2.3** detects and eliminates a total of 893 strains, an additional 403 over the previous version. Parsons Technology, Inc., One Parsons Dr., PO Box 100, Hiawatha, IA 52233-0100. (319)395-9625.
- **SBT Corp.** released **Macintosh Series Six Plus v6.35** for **Accounts Receivable and Sales Orders**. This new version is easier to use and includes user-modifiable context-sensitive Help, a note card interface, and expanded accounting functions. Software Business Technology Corp., One Harbor Dr., Sausalito, CA 94965. (415)331-9900.
- **Solution Systems** released **Sourcerer's Apprentice 2.0**, its configuration management system software. In addition, Sourcerer's Apprentice is now available for Microsoft Windows as well as DOS and OS/2. Solution Systems, a division of The Software Developer's Co., 372 Washington St., Wellesley, MA 02181. 1-800-677-0001.
- **NeWSprint 2.0**, developed by **SunPics**, makes the high-performance SPARCprinter system available to any user on a mixed network environment. Sun Microsystems, Inc., 2550 Garcia Ave., Mountain View, CA 94043-1100. (415)960-1300.
- The **Xerox LAN/Fax Express 21** is now compatible with **Novell's Token-Ring LAN**. Xerox Corp., Xerox Sq., Rochester, NY 14644. 1-800-832-6979.

Continued on page 149

MAC@Fry's ELECTRONICS

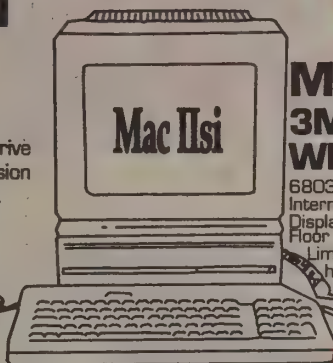


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80 MB SYSTEM

MC68030 Microprocessor
25MHz Clock Speed
80MB Seagate ST1096N Hard Drive
5 MB RAM • 3 NuBUS Expansion
Slots • Supports 8, 24 &
32-Bit • Quick Draw
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Limited To Stock On Hand

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3MB RAM • 40MB HARD DRIVE WITH COLOR DISPLAY

68030 Processor • Built-in supports for 4 video monitors.
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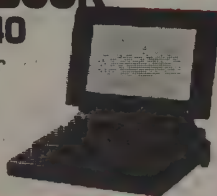
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78 DPI • 75Hz Refresh Rate



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with Software

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210MB HARD DRIVE
Works with all Macintosh
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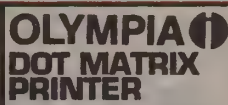
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LASER QUALITY FOR THE MAC
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IMAGewriter
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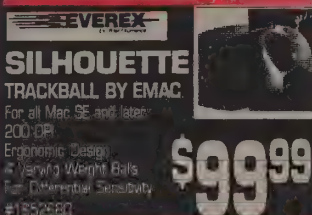
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200-DPI
Ergonomic Design
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Maximum energy dissipation 240 joules
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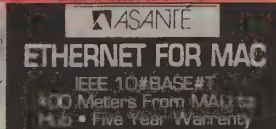
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101
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MAC
KEYBOARD
For Mac SE,
SE30, Mac II
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INTERNATIONAL

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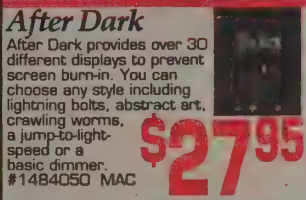
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100 Meters From MAC to
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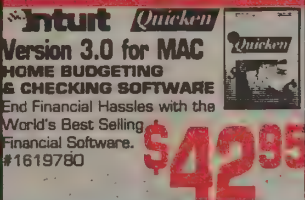
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MAC

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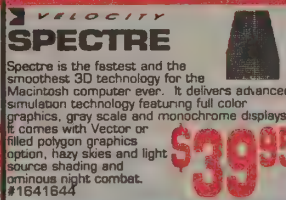
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lightning bolts, abstract art,
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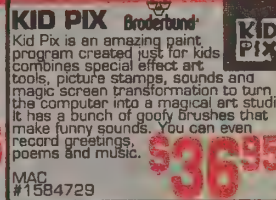
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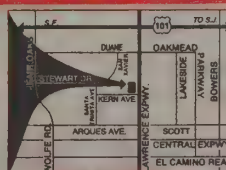
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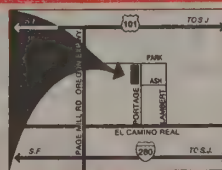
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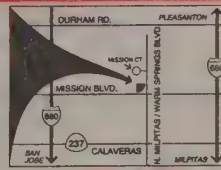
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1MB Expandable to
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101-Key Keyboard • Clock/Calendar
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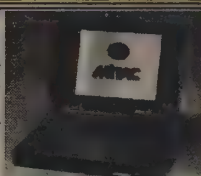
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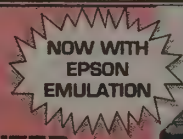
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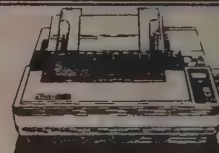
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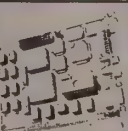
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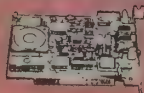
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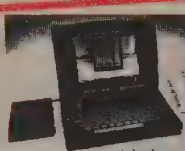
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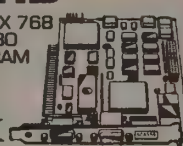
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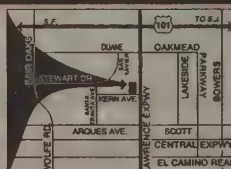
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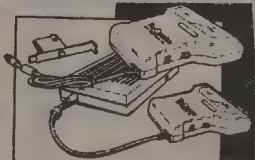


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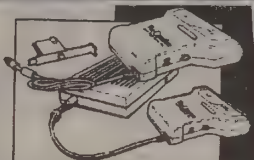
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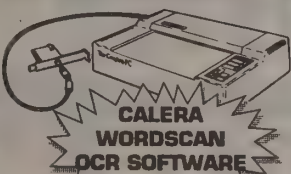
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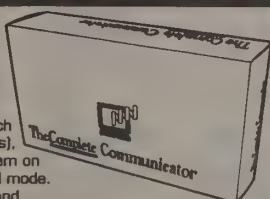


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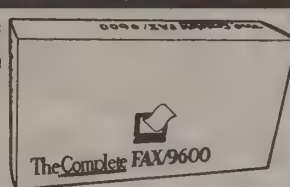
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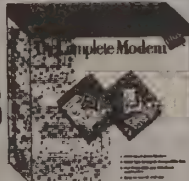
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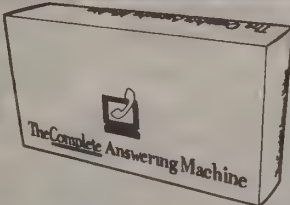


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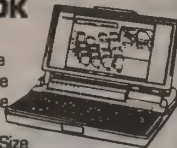
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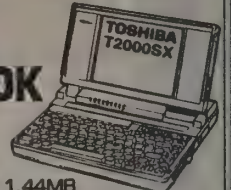


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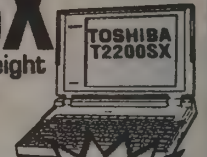
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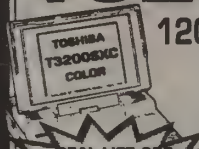
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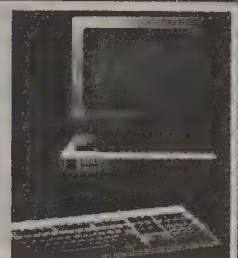
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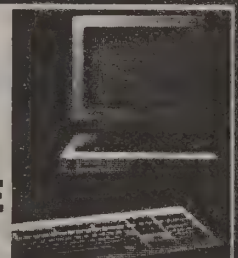
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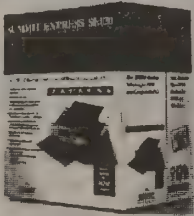
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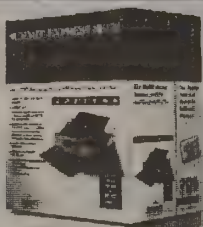
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Model SE250
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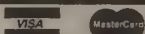
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Fry's understands the inconvenience of downtime due to manufacturer repair delays. In keeping with our total commitment to service and customer satisfaction we offer our ESP customers loaner equipment for any repairs which exceed a 24 hour turn around and are covered under Fry's Depot or On-Site Service Plan.

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AT ANY OF FRY'S
3 SUPERSTORES

- A) No deductible or hidden charges.
- B) Renewable for the life of the product.
- C) No limit to the number of repairs
- D) Equipment repaired within 24 hours or loaner equipment will be provided.

Only \$75/year on a 2 year Loaner Plan for a system costing \$999

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24 HOUR QUICK RESPONSE TIME!

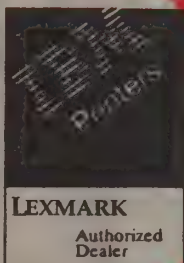
IF YOU DIDN'T BUY IT FROM FRY'S...

See us anyway!

We offer extended service protection on systems and printers purchased elsewhere. Bring your equipment into one of our three service departments and let Fry's courteous service technicians assist you in determining your computer service needs.*

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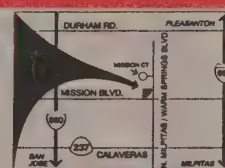
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PCL4 Compatible • 5 Pages Per Minute • Optional PCL5 and POSTSCRIPT™
200-Sheet Input
Optional 500 Sheet
2ND Drawer,
75 Envelope Feeder
1 Year Warranty
#1622638

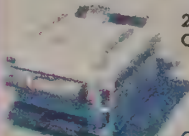
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IBM PRINTERS

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With POSTSCRIPT™ And Memory Upgrades, These New Lasers Do 600 x 600 DPI!

LASER 6 MODEL 4029-020 6 PAGES / MINUTE

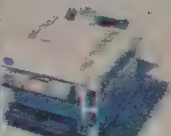


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200 Sheet Paper Cassette
Optional 500 Sheet Second Drawer
Optional 75 Envelope Feeder
100 Auxiliary Feeder
IBM Personal Printer Data Stream Language • HP PCL4 Compatible;
Optional PCL5 • High-Speed Parallel/Serial interfaces
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LASER 10 MODEL 4029-030-030 10 PAGES / MINUTE



#1622650

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Optional 500 Sheet Second Drawer
Optional 75 Envelope Feeder
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Optional PCL5 • High-Speed Parallel/Serial interfaces -Optional AppleTalk™

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700 SHEET INPUT TRAYS STANDARD

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16.7 MHz Motorola 68020 Processor
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250 Sheet Output
High-Speed Compatibility
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BETTER-THAN-LASER RESOLUTION!

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100 capacity cut-sheet bin for professional correspondence!
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THIS PRINTER HAS IT ALL!

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PPS II 2390 PAPER + PRINTER

80 COLUMN

Choose from Push, Pull, Front, Rear cut-sheet paper feeding!
65 CPS Near Letter Quality • 278 CPS Draft • 320 CPS Super Draft
4 Resident Fonts Parallel Interface • Opt. Serial 11K Buffer
2-Year Warranty • Epson & ProPrinter Compatible
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132 COLUMN

PPS II 2391 PAPER + PRINTER

Choose from Push, Pull, Front, Rear, Cut-Sheet paper feeding • 80-Column • 65 CPS NLQ • 278 CPS Draft • 320 CPS Super Draft
4 Resident Fonts • Parallel Interface
Optional Serial 11K Buffer • 2-Year Warranty
Epson ProPrinter Compatible

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ARE THERE MORE RELIABLE LETTER QUALITY DOT MATRIX PRINTERS ON THE MARKET? ABSOLUTELY NOT!

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Model 4019 • 700 Sheet Capacity with optional 2nd Drawer! 10 Pages/Minute! • HP LaserJet II Compatible
BEST PAPER HANDLING IN THE BUSINESS
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THEY ACCEPT 6-PART FORMS!

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65 CPS Near Letter Quality • 278 CPS Draft • 320 CPS Super Draft • 4 Resident Fonts
Parallel Interface
Opt. Serial 11K Buffer
2-Year Warranty • Epson & ProPrinter Compatible
#1611416

\$319

PPS II 2381 PAPER + PRINTER

Choose from Push, Pull, Front, Rear Cut Sheet paper feeding • 132-Column
65 CPS NLQ • 278 CPS Draft • 320 CPS Super Draft
4 Resident Fonts Parallel Interface • Optional Serial 11K Buffer • 2-Year Warranty
Epson ProPrinter Compatible

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5 STRAIGHT PAPER PATHS- NO JAMS!

LASER PRINTER E

5 Pages per Minute
300 DPI • 10 Resident Fonts
Parallel/Serial Interfaces
200 Sheet Paper Tray
Opt. 500 Sheet Second Paper Tray
Optional 75 Envelope Feeder
HP LaserJet II Compatible
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UPGRADEABLE TO 10 PAGES/MINUTE

HIGH SPEED UNATTENDED TRACTOR FEED PRINTER



MODEL 4226

9-Pin Dot Matrix • 400 CPS Draft
100 Near Letter Quality • 22K Buffer
Parallel & Serial Interfaces • 6-Part Forms
Auto Load, Straight Paper Path, Document on Demand.
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533 Blazing Characters Per Second in Fast Draft Mode!

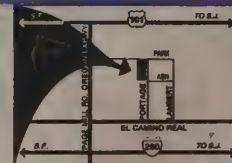
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EPSON Roman And San Serif- SCALABLE From 8 To 32 Points
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Desktop computing power you can
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THE WORKHORSE!

9-Pin Printer • 132 Column
264 Characters Per Second Draft
54 CPS Near Letter Quality • SelectType
SmartPark Features • Push Feed Tractor
Optional Cut Sheet Feeder • TWO YEAR
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NB-SL 386SL 20MHz NOTEBOOK COMPUTER



80386SL - 20MHz • 1.46 MB Floppy
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Low power consumption "SL" chip up to
6 hrs. use. Optional Removable 40MB,
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LQ-1070 24-PIN PRINTER

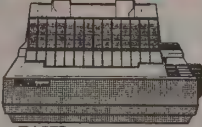


136 Column
210 CPS Draft Mode
70 CPS Letter Quality Mode
#1620186

\$399

PLUS... GREAT PRICES ON EPSON'S STANDARD FONT CLASSICS!

FX-850

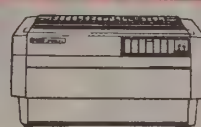


80 Column • 264 CPS Draft
54 CPS NLQ • SelectType
Front Control • SmartPark Feature • Tractor
Feed • Two Year Warranty

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Switch Between 80 Column & Wide Carriage Paper with the Touch of a Button!

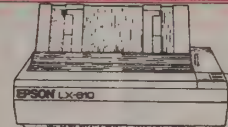


High Speed 9 Pin Printer • 132 Column
533 CPS Super Draft • 480 CPS Draft
80 CPS Near Letter Quality • Dual Push Tractor Feeds
Handles 6 Part Carbonless Forms • Micro Adjust TDF Line Feed

\$1495

#1415348

LX-810 9 PIN PRINTER

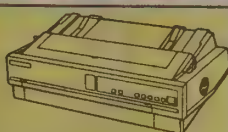


80 Column • 200 CPS Draft • 30 CPS NLQ
SmartPark Paper Handling • SelectType Front Control
Panel • Built-in
Tractor Feed

\$158

#1454833

LQ-870 24-PIN PRINTER

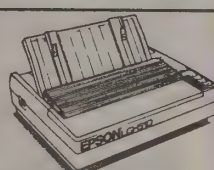


136 Column • 413 CPS Draft Mode
110 CPS Letter Quality Mode

\$469

#1612015

LQ-510 24-PIN PRINTER

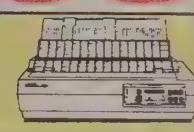


180 CPS Draft • 60 CPS
Near Letter Quality
360 X 360 DPI Graphics
SelectType Control Panel • SmartPark Paper
Handling • 23 X 9 Character Matrix
80 Columns • Tractor Feed • 2 Year Warranty

\$239

#1453038

LQ-2550 24-PIN PRINTER



400 CPS Draft • 133 CPS Letter Quality • 136 Column • High Speed
Superb Letter Quality. Highest quality 24-pin technology for superior high
resolution text and graphics. Prints in seven colors. Smartpark lets you
handle fanfold paper single sheets, envelopes and forms. Selects printer
setting. Smartpark operations and page-format pre-sets. LCD select type
front control panel. Prints 400 CPS Draft. 133 CPS Letter Quality. One
year limited warranty.

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Service EPSON

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for 1 year extended warranty service

9-Pin Printer **\$39.95** 24-Pin Printer **\$59.95**

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C823051 SERIAL INTERFACE

For Action Laser II Printer #1658552

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For EPL7000 and EPL7500 Laser Printers #1558414

S051005 DRUM

For Action Laser II Printers #1658529

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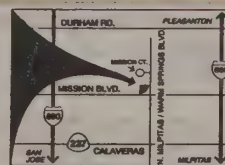
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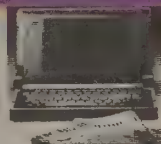
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80386SX 20MHz CPU
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KX-P1180i 9 PIN PRINTER

240 CPS Draft • 48 CPS NLQ
240 x 216 DPI Resolution
80 Column • 4 Built-in Fonts
Cut Sheet & Tractor Feed



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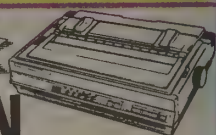
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WIDE-CARRIAGE DOT MATRIX PRINTER

63 Characters Per Second in Letter Quality Mode
5 Letter Quality Fonts: Prestige, Courier,
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Convertible Push/Pull Tractor
24-Pin - Rear, Front, Top & Bottom Feed



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Looking for a High Production
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8 pages per minute
250 sheet paper tray
512K Memory Upgradeable to 2.5MB
300 DPI resolution

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KX-P4450i
#1556098

24-PIN



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63 Characters Per Second in Letter
Quality Mode • 5 Letter Quality Fonts:
Prestige, Courier, Bold PS, Script & Sans
Serif • 192 CPS in Draft • Convertible
Push/Pull Tractor • 24-Pin - Rear, Front,
Top & Bottom Feed

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KX-P2624



The Quiet 24-Pin

Wide carriage Printer is Here!

Super Letter Quality Mode • 11 Resident Fonts
63 CPS in Near Letter Quality mode • 132 Column
240 CPS in Draft Mode • Rear, Bottom, Front & Top Feed
Programmable EZ Set Operator Panel
Parallel Interface, Optional Serial
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KX-P 155

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1024 X 768 NON-INTERLACED MONITOR

C1395

PANASONIC C-1395
1024 X 768
Non-Interlaced
.28 Dot Pitch
VGA Display

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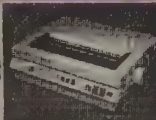
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KX-P1124i

24 PIN PRINTER

80 Columns
300 CPS Draft
100 CPS Letter Quality Mode
7 Built-in Letter Quality Fonts
2 Year Limited Warranty
Built-in Tractor Feed

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KX-P4455

11 Pages Per Minute
2MB RAM Expandable to 4MB
Serial, Parallel & Appletalk Interfaces
39 Adobe Postscript Fonts #1542910

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KX-P450 TONER

Toner used for printers
KX-P4450/KX-P4450i
KX-P4455
#1543025

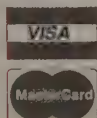
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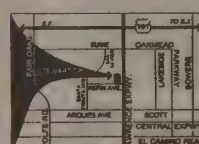
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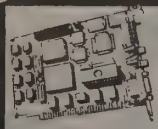


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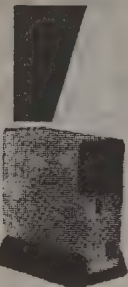
2400 BAUD



44-502-102 HOOK-UP INTERNAL

2400/1200/300 Baud
Hayes Compatible Modem
1/2 Card, PC/XT/AT
#162332

\$59⁹⁵



2400 BAUD MAC



EXTERNAL MODEM

Tower Design • Hayes Compatible
5 Year Warranty
Comes with Software and cables
#1478121

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MNP5 EXTERNAL MODEM

2400/1200/300 Baud
Hayes Compatible Modem
External Modem with MNP5
#1495146

\$139



9600 BAUD EXTERNAL MODEM



A 9600bps/V.32 Modem with V.42bis
The ViVa 9642e is a V.32, 9600 baud modem that means business. This high speed, full duplex modem has V.42bis and MNP4 error detection and correction. All this adds up to a maximum throughput rate of 38,400 bps, saving you time and money!
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\$429⁹⁵

9600 FAX 2400 BAUD MODEM INTERNAL CARD

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9600 Baud/Fax • 2400 Baud
Internal Modem PC/XT/AT Compatible
Non-Volatile Memory
#1579385

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2400 BAUD

EXTERNAL MODEM

44-502-101000
2400 Internal Modem
Hayes Compatible W/ Software
#1520853

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V.42 BIS

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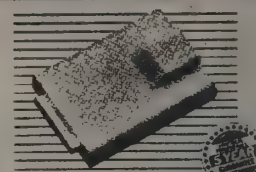
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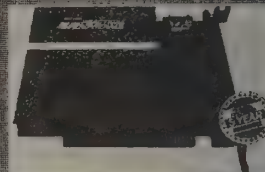


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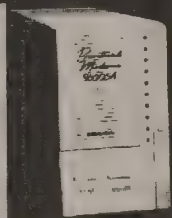
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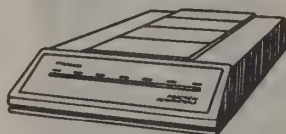


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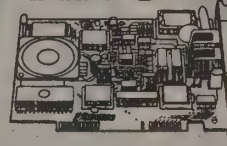


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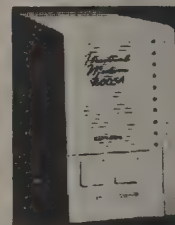
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4 to 1
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With
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For MAC

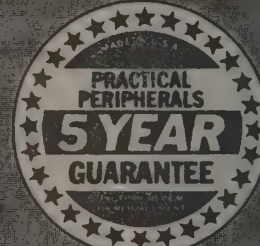
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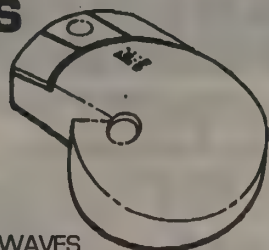


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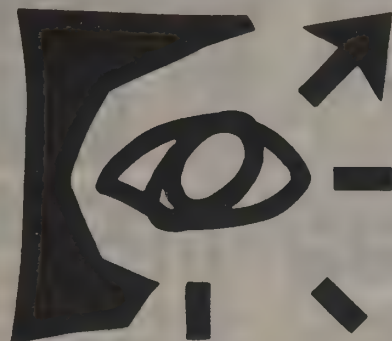
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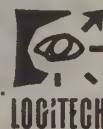
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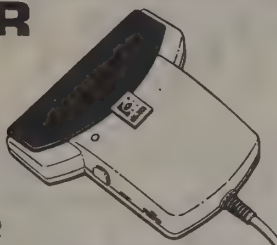
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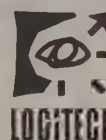
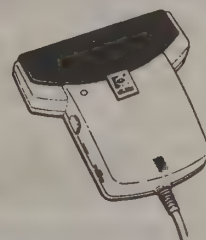
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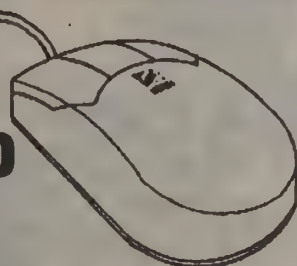


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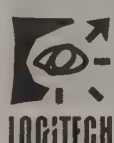
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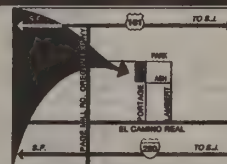
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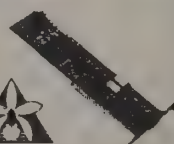
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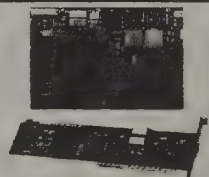
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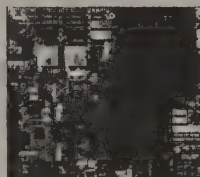
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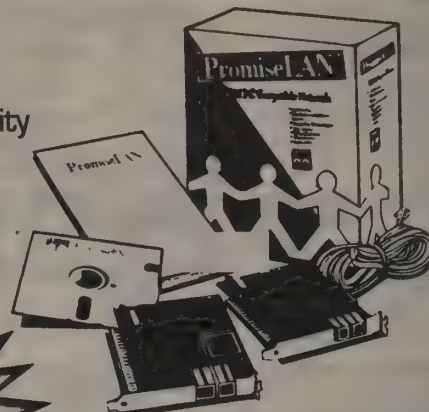
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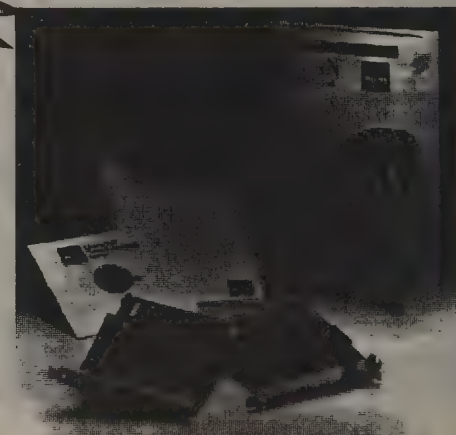
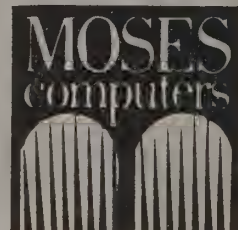
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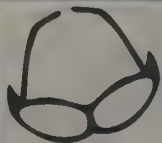
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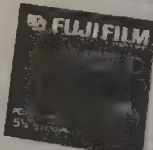
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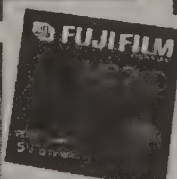
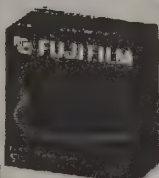
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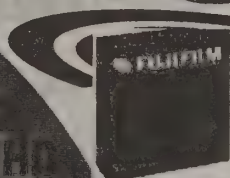
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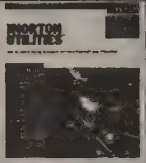
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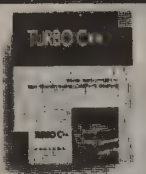


Stacker is a software that can increase the size of your Hard Disk up to double its capacity. The actual ratio of data compression that occurs depends on the types of files you have on your computer. It compresses data as it enters and decompresses data as it is read.

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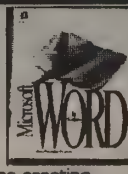


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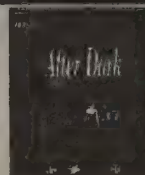
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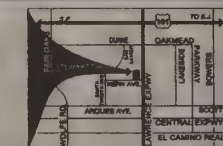
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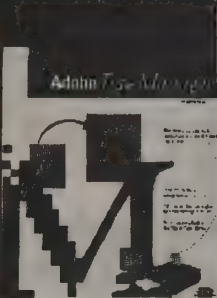
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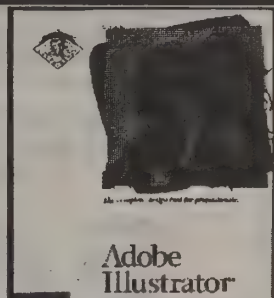


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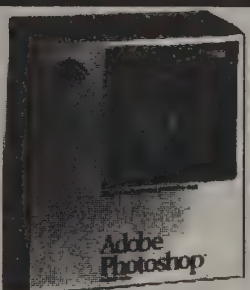


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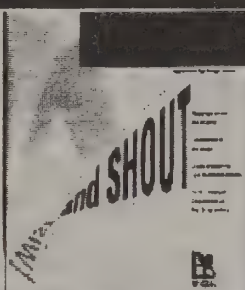


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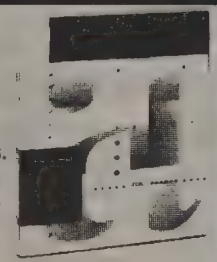
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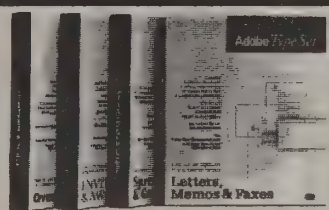


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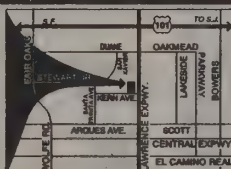
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Turbo Tax gives you complete control over completing your tax return. It handles all the boring, difficult complications and makes sure they're done right. On-line tax help will explain IRS rules for you.



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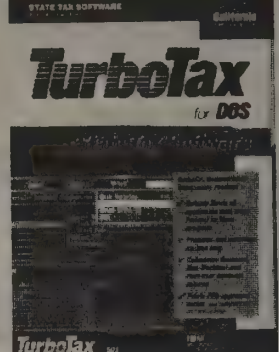
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1991 CALIFORNIA

Turbo Tax/California is a companion product to TurboTax Personal 1040. It interfaces completely to make California State Tax preparation accurate, fast and easy.



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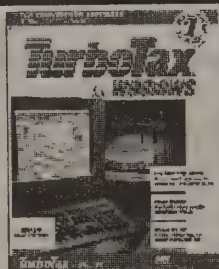
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TurboTax

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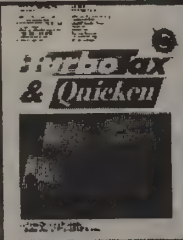


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New Version 4.0
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CHIPSOFT, Inc.

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#1488799

MacInTax

MacInTax

MacInTax gives you total control over completing your tax return. It's convenient status bar lets you click on a button and jump right to the tax help you need. It imports figures from Quicken, and other financial software packages. It's System 7 compatible and includes balloon help.



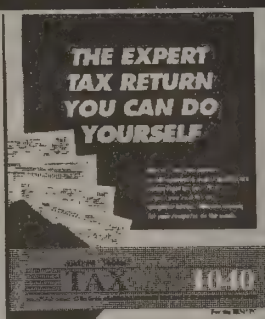
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The only expert system for managing your taxes! Tax Cut lets you prepare an IRS-approved, expert-quality tax return right on your PC, even if you are a tax or computer novice. This tax season, let your computer do the work.

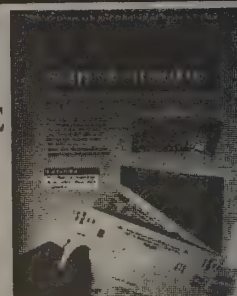


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J.K. LASSER'S YOUR INCOME TAX SOFTWARE

J.K. Lasser's tax software lets you prepare a professional quality tax return quickly and easily. It reminds you of deductions you might overlook and advises you on tax strategies to save money. It is compatible with Quicken, electronic filing option, and prepares an unlimited number of returns.



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SIMON &
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Provides capability of building a standard Appletalk network.



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Faster contact cleaner.
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CONTAINS NO CFC's
Leaves NO Residue • NON-Flammable
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For Professional or Industrial use only.
Contains 100% Chlorodifluoromethane.
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Dual wattage for light and heavy duty soldering
Includes power base with 21/35 watt control, soldering iron, holder and sponge.

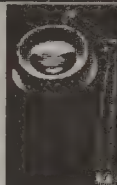


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[1.75X] • 3 diopter magnifier light.
37" reach • 22 watt bulb



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20MHz DUAL-TRACE OSCILLOSCOPE

Dual or Single Trace Operation • ±1mV/DIV Sensitivity
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AUTO/NORM triggered sweep operation with AC TVH TVV and the coupling • x10 magnifier
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RG-58/U
50 OHM

Ideal for Lan & Wan networking
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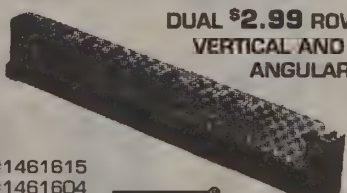
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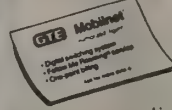
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TRANSPORTABLE HANDHELD CELLULAR TELEPHONE

Motorola's most popular Hand Held Phone has all the right features! This compact unit will allow you to talk for up to 90 minutes, keep 30 numbers in memory, and much more!



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TRANSPORTABLE CELLULAR TELEPHONE

If it's features you want, the 1500 has it all! It keeps your most frequently dialed numbers and redials busy numbers automatically. For most phones, hands free requires an external kit with installation required. Not this phone! All you need is a microphone that we have in stock!



Model 1500TPK
#1591682

\$499⁹⁵

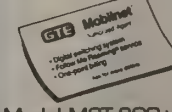
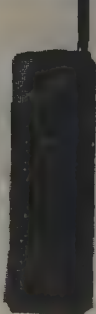
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MURATA

PORTABLE CELLULAR PHONE

Murata thinks of everything! This lightweight feature packed cellular phone from Murata offers Dual-Nam capability, a 30 number auto dialer, is backlit, and has a built-in timer and calendar to tell you everything from how long you've been talking, to what day it is!



Model MCT-200 Limit 1 per customer
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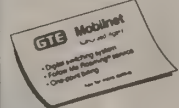
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CELLULAR TELEPHONE

Get Motorola's hottest Cellular Telephone with Alpha-Numeric display, compact ergonomic design and low profile antenna for the amazing low price of . . .



Model 9800HX
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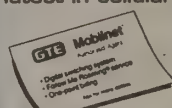
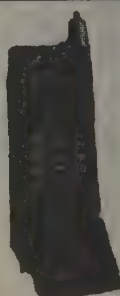
\$518



MOTOROLA

ALPHA MICRO-TAG CELLULAR PHONE

If it's small and lightweight that your looking for, this is the cellular phone for you! With it's 101 alpha numeric memory, a desktop rapid charger, 20 hour battery in standby, 8 hour battery in standby and carrying case, this cellular phone incorporates the latest in cellular phone technology at only...



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\$879

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FRY'S ELECTRONICS

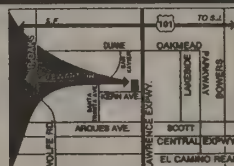
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PRODUCT SPOTLIGHT

Continued from page 126

NETWORK HARDWARE

JETCARD/DJ PLOTTER SHARING

The JetCard/DJ, specifically designed for the HP DesignJet plotter, provides high-speed, transparent, and concurrent data spooling for up to seven users. This interface card plugs into the modular I/O (MIO) slot of the

HP DesignJet, eliminating the need for a power connection. Four of the six serial ports support data transfer up to 115,200 baud. In addition to offering local work group connectivity, the JetCard/DJ

supports connection from a LAN through the serial or parallel port on the server, thus enabling LAN users to plot on the shared HP DesignJet plotter. When used with a LAN, the plot jobs are off-loaded from the LAN, dynamically stored in the JetCard/DJ buffer, and plotted on a first-in, first-out basis along with the jobs from all the users directly connected. (\$995 with 2MB buffer, \$1195 with 4MB buffer) Excellink, Inc., 1430 Tully Rd., San Jose, CA 95122-3058. (408)295-9000.

10BASET CONNECTOR

The CompuLAN TPC8800 Ethernet 10BaseT connector provides eight RJ45 ports for connection to unshielded twisted pair wiring, one BNC port for backbone or mixed media networks, and one cascading port for parallel connectivity expansion. It features automatic partitioning and reconnection in the event of a network segment failure. The TPC8800 meets the IEEE 802.3 10BaseT and 10Base2 standards, and carries a two-year warranty. (\$469) CompuLAN Technology, Inc., 180 Charcot Ave., San Jose, CA 95131. 1-800-486-8810.

PC HARDWARE

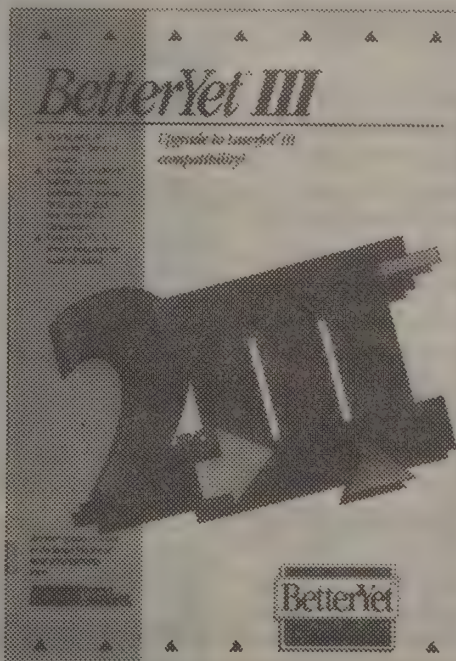
FONTMASTER CARTRIDGE

The FontMaster Cartridge for HP LaserJet printers comes with the Kelly Font Library of over one hundred fonts and can be programmed by the user to include bitmapped

fonts, scalable fonts, forms, or macros. For example, whole catalogues of forms such as sales and purchase orders, invoices, reports, and letterhead can be stored on a single cartridge. New forms can be designed or updated, and easily reprogrammed into the cartridge. FontMaster works with all HP LaserJet Series II, III, and IIISi printers, works with any printer that supports Series II cartridge formats, and includes a full lifetime warranty on parts and labor. (1MB capacity, \$449; 2MB capacity, \$599) Kelly Computer Systems, Inc., 274 Ferguson Dr., Mountain View, CA 94034. (415)960-0154, 1-800-934-2000.

BETTERYET III CARTRIDGE

BetterYet III is a PCL-5 emulation cartridge that upgrades HP LaserJet Series II printers to Series III compatibility. This plug-in cartridge provides a cost-effective upgrade solution that's easily installed into a font slot, and allows offices to standardize their equipment on LaserJet III levels. It features the same Intellifont scaling technology found in LaserJet models, ensuring 100% font compatibil-



ity. A second version is available for HP LaserJet IID and IIP users. (\$299) Output Technology Corp., E. 9922 Montgomery Dr., Spokane, WA 99206-4199. 1-800-238-7938.

TOSHIBA MULTIPLE CD-ROM DRIVE ENCLOSURE

The TXM-3301A4, housing up to four Toshiba XM-3300 CD-ROM drives, eliminates the need for disc handling and changing for applications requiring access to large databases and multiple CDs. For even more demanding applications, two enclosures can be daisy-chained to permit up to eight CD titles to run simultaneously from a single host adapter. The drives are completely enclosed and separated from the power supply to prevent contaminants from entering the drive. An optional parallel-to-SCSI cable connects the drive to laptop and notebook computers. The drive can also connect to desktop computers using Toshiba's Subsystem Kits for IBM PC AT/XT, PS/2, and Apple Macintosh. (Enclosure with four drives and PC installation kit has a suggested retail price of \$3170) Toshiba America Information Systems, Inc., Disk Products Division, 9740 Irvine Blvd., Irvine, CA 92708. (714)583-3000.

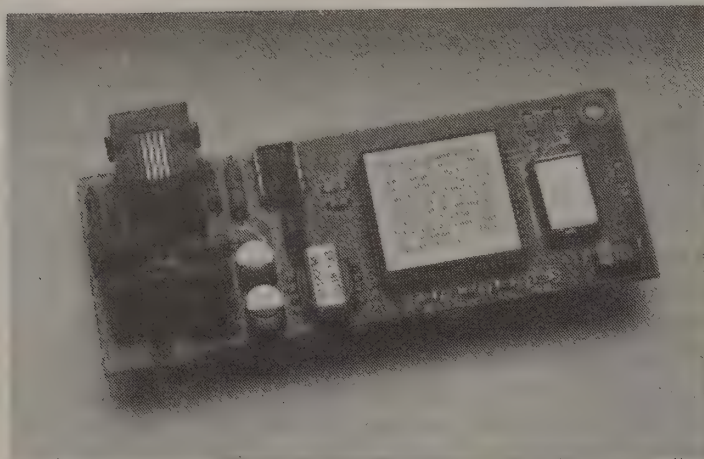
KANSAI MODULINK PRINTER SHARING

ModuLink uses standard modular telephone cables to connect up to six computers to four printers to maximize the value of your existing computer equipment. It consists of both transmitter and receiver modules. Transmitter modules are dedicated to each computer. Users can specify the printer they want or rely on AutoSelect to find the first available printer. The receiver modules feature a 16K buffer. ModuLink works with any computer and printer with a Centronics-compatible parallel port. (\$199, carries a five-year warranty) Kansai Electronic, USA, Inc., 2005 Hamilton Ave., Suite 220, San Jose, CA 95125. (408)377-7062, 1-800-733-3374.

MAC HARDWARE

POWERMODEM FOR THE POWERBOOK

The PSI PowerModem, an internal 9600bds fax/2400bds data modem, has been designed specifically for the Apple Macintosh PowerBook line of computers. It is Hayes compatible and features the same software as the PSI



COMport and COMstation modems, including a comprehensive set of user-definable phone books. QuickFax is a convenient desk accessory that permits users to send a quick fax note without opening an application. An automatic answer feature allows users to receive faxes without interrupting their work in progress, and a redial feature ensures that faxes are sent even if the receiving line is busy the first time. In addition, users can customize their cover sheets, adding a personal message or company logo. (\$299) PS Integration, Inc., 851 E. Hamilton Ave., Suite 200, Campbell, CA 95008. 1-800-622-1722.

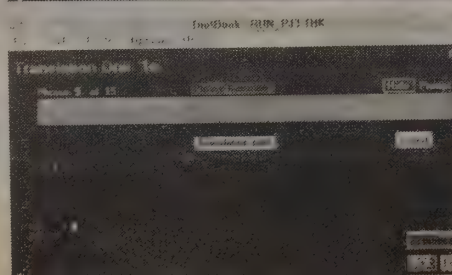
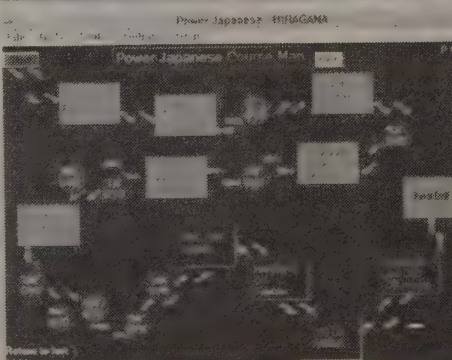
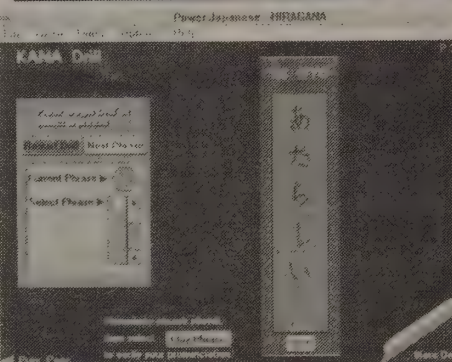
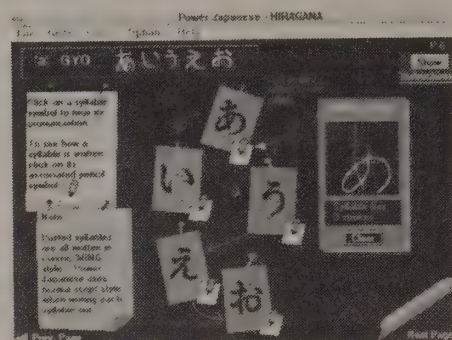
HITCHHIKER POCKET HARD DRIVES

The HitchHiker introduces the new line of pocket-size hard drives for the Macintosh from Mass Microsystems. These 40MB or 80MB drives use 2.5" drive technology with high shock resistance and low power consumption to offer an ideal storage solution for PowerBook users and all Macintosh users who must carry with them large amounts of information. The units are powered directly from the Mac and include a standard adapter for the ADB port, as well as an adapter for the MacPlus through the floppy drive port. They are sold preformatted and include PadLock HD Utility software for formatting, partitioning, password protection, and testing the media. (40MB drive, \$748; 80MB drive, \$999) Mass Microsystems, Inc., 810 W. Maude Ave., Sunnyvale, CA 94086. (415)522-1200.

PC SOFTWARE

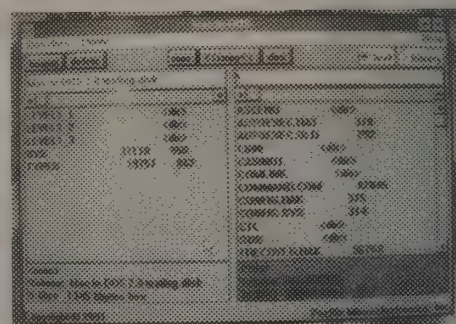
INTERACTIVE POWER JAPANESE

Power Japanese turns your PC running Windows 3.0 into a powerful multimedia educational tool. Plug the sound adapter into the printer port, attach the headphones, and you are ready to begin using this powerful Japanese language learning program. From the beginning, Power Japanese teaches you to read, write, and speak all 112 basic Japanese syllables, which are the building blocks of the Japanese language. With this foundation you will be able to learn the basic elements of Japanese grammar, master the essentials of Japanese language and culture, and progress quickly to words and phrases. (\$189, including sound adapter, headphones, exercise book, pocket dictionary, and flash cards) BayWare, Inc., 201 San Antonio Cir., Suite 128, Mountain View, CA 94040. 1-800-53-TUTOR.



MAC-IN-DOS

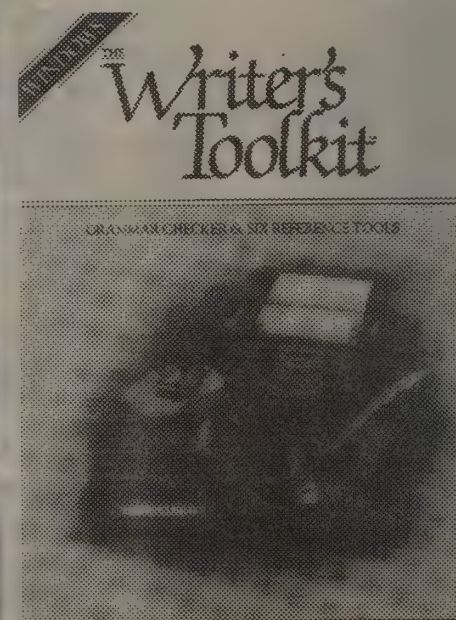
Mac-In-DOS gives DOS-based PCs the ability to transfer files to and from Macintosh computers via 1.44MB floppy disks. The newest version, Mac-In-DOS 2.0 for Windows, lets users take advantage of Windows capabilities, such as mouse support and icon control. After you launch this program, insert a Mac



disk and select the files—text or graphics—to transfer. Mac-In-DOS will also add or remove the line feeds within a document. (\$199) Pacific Micro, Inc., 201 San Antonio Cir., Suite C250, Mountain View, CA 94040. (415)948-6200.

THE WRITER'S TOOLKIT FOR WINDOWS

The Writer's Toolkit is a complete writing system for anyone who wants to write better. It combines a grammar and style checker with six other writing references: the American Heritage Electronic Dictionary with Definitions, Anagrams, Lookup, and Spelling Alternatives; Roget's II Thesaurus; the Concise Columbia Dictionary of Quotations; Houghton Mifflin's Abbreviation Program; Written Word III Principles of Grammar & Style; and the Dictionary of Common Knowledge. The program supports all Windows word processors. All seven tools are acces-



Continued on page 156

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Our experienced technicians
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80386sx-16MHz Motherboard	\$179
80386sx-20MHz Motherboard	\$209
80386DX-25MHz CPU/Motherboard	\$299
80386DX-33MHz CPU/Motherboard	\$399
80486DX-25MHz CPU/Motherboard	\$709
80486DX-33MHz CPU/Motherboard	\$789

Memory	\$42
Installation Fee	\$45

386sx-25MHz Complete System Special

FCC Class B Certified



80386sx-25MHz
2MB RAM Installed
IDE Host Adapter
Teac 1.2MB Floppy Drive
80MB Hard Drive
VGA Graphic Adapter
14" VGA (640x480) Monitor
2 Serial, 1 Parallel, 1 Game Ports
101-key Enhanced Keyboard

\$980

Sound Blaster/Sound Blaster Pro

Sound Blaster - The Ultimate Sound Board

Text-to-Speech Synthesizer
11-voice FM Music (AdLib Compatible)
Digitized Voice Input/Output
MIDI Interface
Joystick Port
Power Amplifier & Volume Control
Bundled Software

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Sound Blaster Pro - The Multimedia Sound Standard

All the features of Sound Blaster plus...
Complies w/ Multimedia Extensions for Windows
Stereo Recording for Lin-In and CD-Audio
22-voice FM Music Synthesizers
Digital & Analog Mixer
Selectable IRQ and DMA
And More Bundled Software

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Chaplet Laptops and Notebooks

386sx-20MHz Laptop

- LCD 640x480 VGA display
- 1MB RAM, up to 5MB
- 1.44MB floppy drive
- 40MB hard drive
- Rechargeable battery
- I/O ports
- 8- and 16-bit expansion slots
- 14.6 Lbs

386sx-20MHz Notebook

- LCD 640x480 VGA display
- 2MB RAM, up to 5MB
- 1.44MB floppy drive
- Hard drive options*
- I/O ports
- Rechargeable battery
- 6.5 Lbs

\$1,845 \$1,899 w/ 60MB
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BASIC BARE-BONE SYSTEMS

TECH 286-12MHz	\$279
TECH 286-16MHz	\$299

TECH 386sx-16MHz	\$359
TECH 386sx-20MHz	\$398
TECH 386DX-25MHz	\$478
TECH 386DX-33MHz w/ 64K Cache	\$558
TECH 386DX-40MHz w/ 64K Cache	\$578

TECH 486-25MHz w/ 64K Cache	\$845
TECH 486-33MHz w/ 64K Cache	\$928
TECH 486-33MHz w/ 256K Cache	\$999

TECH 486-33MHz EISA w/ 64K Cache	\$1,646
----------------------------------	---------

Bare-bone system includes: 1MB RAM, 1.2MB or 1.44MB floppy drive, IDE host adapter, clock & calendar, 2 serial, 1 parallel, 1 game ports, Costar mini 101 keyboard, desktop or mini-tower case w/ power supply, and socket for math coprocessor.

All systems have a one-year parts and labor warranty.

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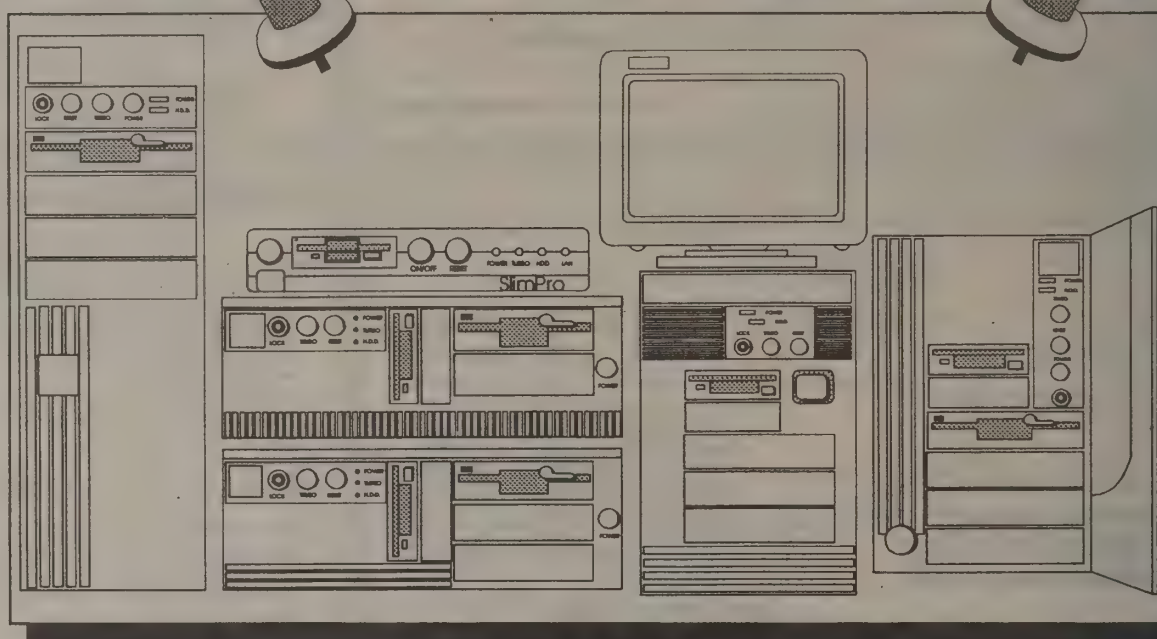
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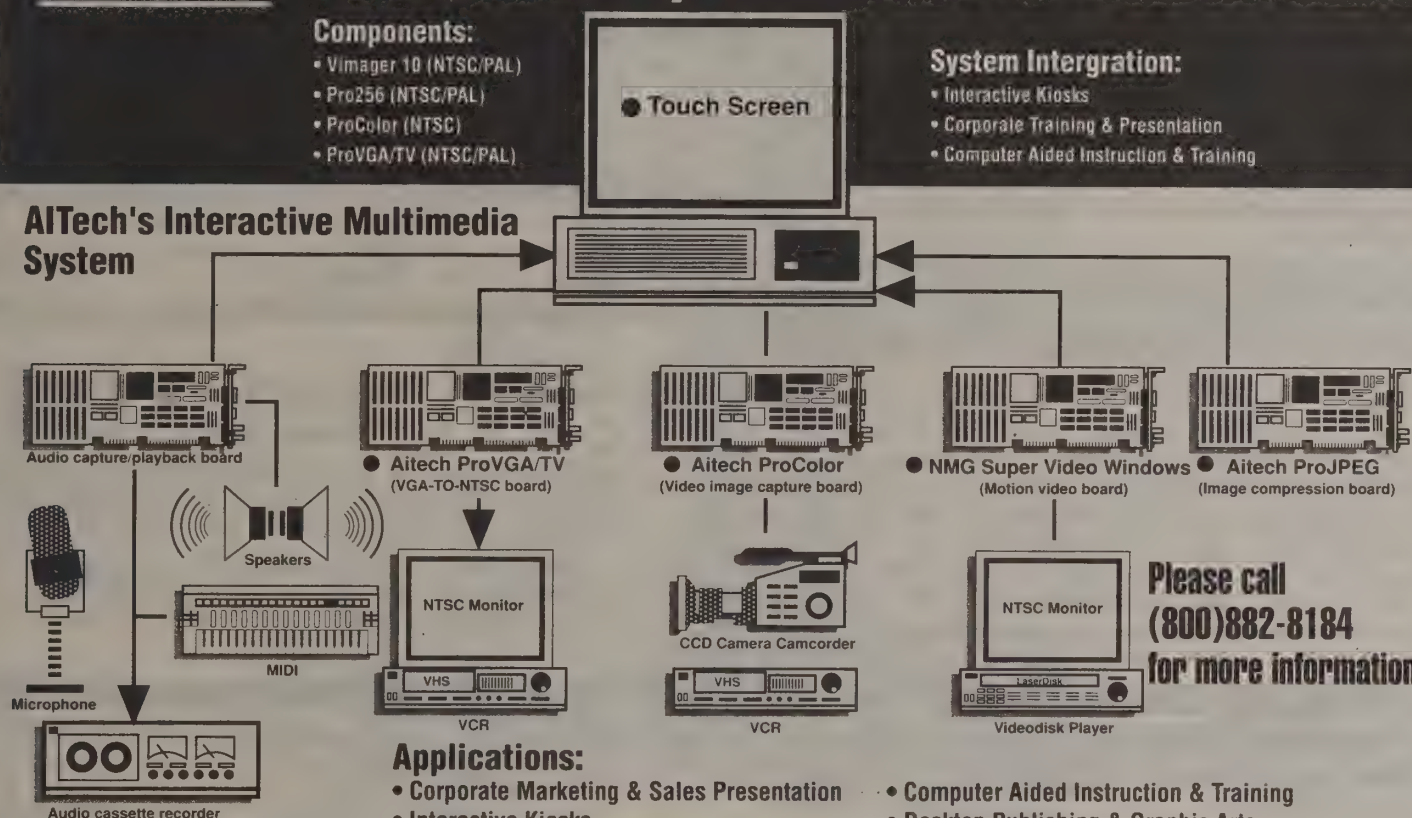
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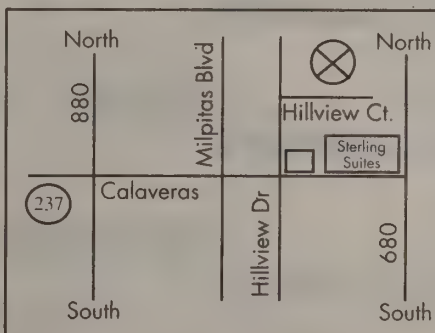
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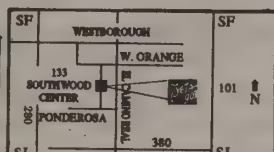
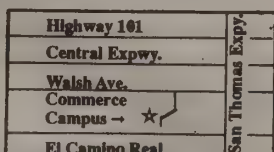
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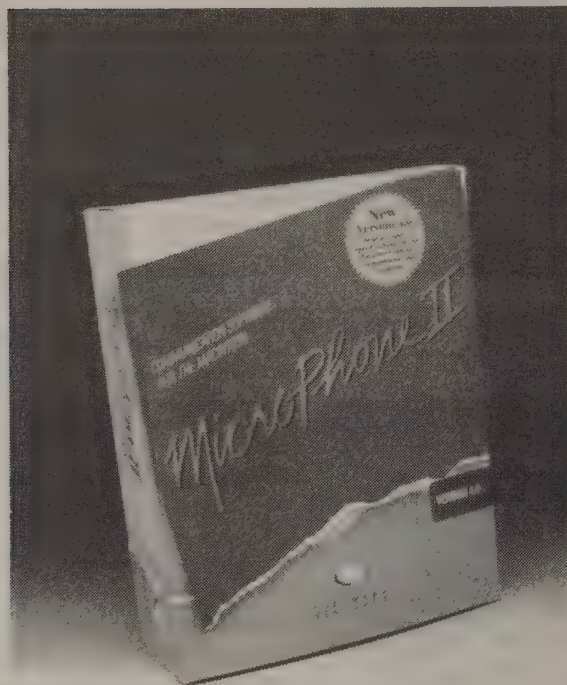
Continued from page 150

sible through pull-down menus from within MS Word, WordPerfect, and Ami Pro. (\$129) Systems Compatibility Corp., 401 N. Wabash, Suite 600, Chicago, IL 60611. (312)329-0700, 1-800-333-1395.

MACINTOSH SOFTWARE

MICROPHONE II 4.0

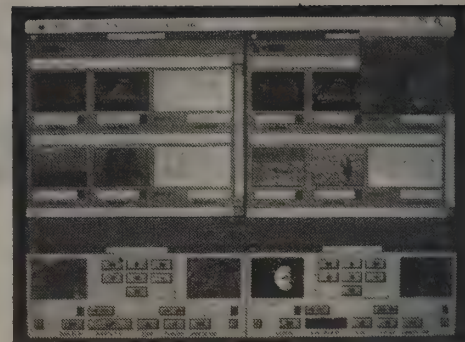
MicroPhone II 4.0 telecommunications software is designed to take advantage of the power of System 7. For example, by supporting Publish and Subscribe, it can download information and automatically route it to any designated place in another application,



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cally assemble the master video tape. (Video Sequencer, \$595; NEC PC-VCR, \$2195) Light Source Computer Images, Inc., 500 Drakes Rd., Greenbrae, CA 94904. (415)461-8000.

GAMES REVIEW

By Mike Markowitz

ELVIRA II: THE JAWS OF CERBERUS

Designed By: Mike Woodroffe, Alan Bridgeman, and Simon Woodroffe

Published By: Accolade

For: MS-DOS (640K, EGA or VGA, 8MHz AT or faster CPU, mouse recommended), Amiga version available soon

List Price: \$69.95

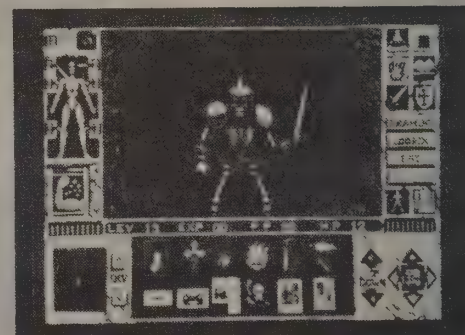
An evil force has taken over Elvira's movie studio and is holding her captive deep inside one of the spooky sets—is it the graveyard, the haunted house, or the catacombs?

Elvira (the alluring TV and movie character created by actress Cassandra Peterson) is light-hearted, but like the previous Accolade game of this series, Cerberus is a very serious horror adventure.

Your first challenge is to get into the studio. The guard at the security gate can't help you much, being very dead (you'll find him in the bloodstained closet). You need to collect various keys and punch in various access codes from the copy protection code wheel to get inside so that the creatures can kill you. Until you get used to the game's combat system, they will do this with numbing consistency, leaving a picture of your battered corpse on the screen, with an invitation to "Play again?"

Programmed in the UK by a group called Horror Soft, the very busy point-and-click user interface uses several windows and displays, including a graphic representation of the player's body that turns into a skeleton as you take hits in combat.

Magic spells are an important part of the game. To cast one of the thirty-seven spells you need to collect the required ingredients and expend power points. Before playing the



game you need to be thoroughly familiar with everything in the 26-page manual, or you won't last very long. Elvira II is so complex and difficult that serious players will eventually need to order the \$10 clue book. Accolade also offers a 900 telephone Hint number and an online customer support bulletin board.

My only serious objection to the game is that there is no apparent way to turn off the sound track, which can become irritating after a while.

Elvira II is a monster game in more ways than one: its 244 files take up over 5.8MB of hard disk space. (Accolade, Inc., 550 S. Winchester, San Jose, CA 95128. 408/985-1700)

Graphics and Animation: 8

User Interface: 7

Sound: 6

Customer Support: 9

Overall Value: 7

SPORTS ADVENTURE

Designed By: Bill Gross, Andrew Postman

Published By: Knowledge Adventure

For: MS-DOS (640 K, EGA or VGA, audio card and mouse recommended)

List Price: \$79.95

Sports Adventure is a huge (6MB) multime-

Continued on page 162

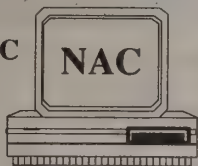
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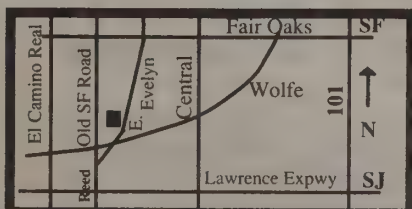
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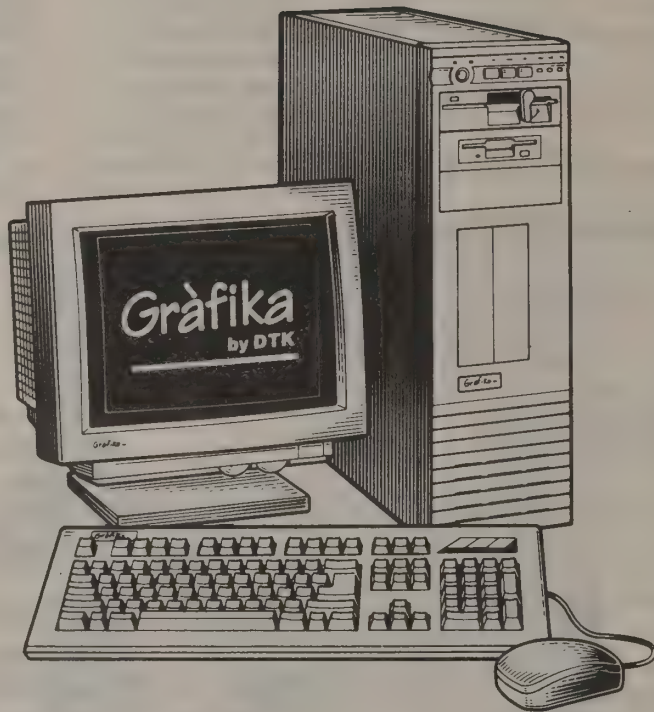
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386-33	550	650	850
386-25	450	550	750
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IBM 4019/4019E
IBM / Lexmark 4029
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4MB 6450128 239
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4MB 110237-001 425
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2MB 118304-001 149
4MB 118305-001 265
DeskPro 386N, 2MB 118689-001 139
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A. Which one category best describes your company?

- ☐ 01 Manufacturing of computer equipment, computers, DP hardware, peripherals
- ☐ 02 Software development
- ☐ 03 Manufacturing
- ☐ 04 Agriculture, mining, construction
- ☐ 05 Transportation
- ☐ 06 Communications
- ☐ 07 Utilities
- ☐ 08 Finance, banking, insurance
- ☐ 09 Real estate
- ☐ 10 Health, medical service
- ☐ 11 Legal
- ☐ 12 Education
- ☐ 13 Data processing, computer service
- ☐ 14 Government
- ☐ 15 Consultant
- ☐ 16 Wholesale/Distributor
- ☐ 17 Research/Development
- ☐ 18 Engineering/Architecture
- ☐ 19 Advertising
- ☐ 20 Sales/Marketing
- ☐ 21 Personnel Placement
- ☐ 22 Entertainment
- ☐ 23 Other

B. Which one category best describes your job title?

- ☐ 01 Owner, Partner, President
- ☐ 02 VP, Gen. Mgr.
- ☐ 03 Marketing Manager
- ☐ 04 Business Manager
- ☐ 05 Sales Manager
- ☐ 06 Project Manager
- ☐ 07 Data Processing Manager
- ☐ 08 MIS Director
- ☐ 09 Systems Analyst
- ☐ 10 Engineer
- ☐ 11 Educator
- ☐ 12 Bus. Microcomputer Specialist

C. How many employees does your company employ?

- ☐ 01 Over 5000
- ☐ 02 2500-4999

- ☐ 03 1000-2499
- ☐ 04 250-999
- ☐ 05 100-249
- ☐ 06 25-99
- ☐ 07 10-24
- ☐ 08 Under 10

D. What department are you in?

- ☐ 01 Accounting
- ☐ 02 Administration Management
- ☐ 03 Communications
- ☐ 04 Data Processing
- ☐ 05 EDP/MIS
- ☐ 06 Education/Training
- ☐ 07 Engineering
- ☐ 08 Finance
- ☐ 09 Marketing
- ☐ 10 Operations
- ☐ 11 Personnel
- ☐ 12 Production/Plant
- ☐ 13 Purchasing
- ☐ 14 Research & Development
- ☐ 15 Sales
- ☐ 16 Other

E. What is your department's estimated budget for computer and computer related peripherals for the next 12 months?

- ☐ 01 Over \$500,000
- ☐ 02 250,000 to 499,999
- ☐ 03 100,000 to 249,999
- ☐ 04 50,000 to 99,999
- ☐ 05 25,000 to 49,999
- ☐ 06 10,000 to 24,999
- ☐ 07 Under 10,000

F. Through what channels will your department purchase its 5 computers and peripherals?

- ☐ 01 Computer Retail Store
- ☐ 02 Distributor /Wholesaler
- ☐ 03 Value Added Reseller
- ☐ 04 Consultant
- ☐ 05 Mail Order
- ☐ 06 Manufacturer
- ☐ 07 Other

G. How are you involved in your company's purchasing decisions?

- ☐ 01 I approve purchase
- ☐ 02 I specify product and vendor
- ☐ 03 My opinions influence purchase
- ☐ 04 I do not influence purchasing

H. For how many personal computers do you have this involvement?

- ☐ 01 1 to 5
- ☐ 02 6 to 10
- ☐ 03 11 to 25
- ☐ 04 26 to 50
- ☐ 05 51 to 100
- ☐ 06 100 or more

I. Does your company have personal computers?

- ☐ 01 Yes ☐ 02 No

IA. Currently Own

IB. Plan to purchase within next 12 months.

IA		IB
BRAND NAME COMPUTER		
		AT
		286
		386 SX
		386
		486
COMPATIBLE		
		AT
		286
		386 SX
		386
		486
MACINTOSH		
		Mac SE or below
		Mac II up ..
		Amiga
		Atari
		Mainframe
		Mini System
		Network

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SMC PC500FS 16-Bit Coax	315
SMC EISA 32-Bit Coax Arcnet or TP Arcnet	743
SMC PC500WS 16-Bit Coax	170
THOMAS CONRAD 8-BIT Coax Star/Bus	92/106
THOMAS CONRAD 16-BIT Coax Star/Bus	240/270
THOMAS CONRAD MC Coax Star or TP Star	258
TIARA LANCARD/A PC Coax 8-Bit/16-Bit	99/190
TIARA LANCARD/A Hiz Bus PC/AT	146/206

Ethernet

AQUILA Coax 16-Bit or MC	155
3COM 3C503 5 Pak, No Doc or Driver	804
3COM 3C503 ETHERLINK II	189
3COM 3C523B ETHERLINK/MC	290
3COM 3C523B ETHERLINK/MC 5 PK	1255
3COM 3C507 SPK, No Doc or Drivers	1,345
3COM 3C507 16-BIT ETHERLINK (new lower price)	250
3COM 3C523B SPK Micro Channel	1,218
3COM 3C543 ETHERLINK/NB (MAC)	401
EVEREX SPEEDLINK PC Coax 8-Bit	120
EVEREX SPEEDLINK PC Coax 16-Bit	180
INTEL ETHEREXPRESS 16	145
INTEL ETHEREXPRESS 32-Bit EISA	576
NOVELL NE2/2-32A 32-Bit MC	581
NOVELL NE1000 Compatible 8-Bit	125
NOVELL NE2000 Compatible 16-Bit	155
NOVELL NE2/2A 16-bit Micro Channel	271
NOVELL NE3200 32-Bit EISA	820
RACAL ES3210 32-Bit EISA	708
SMC 3016/MC Coax	219
SMC 3016 16-BIT Coax	175
SMC 3008 8-BIT Coax	144
SMC ETHERCARD ELITE 8/16 Coax	155/190
SMC ETHERCARD PLUS-A FOR PS/2	236
THOMAS CONRAD 16-Bit RJ45/BNC	315
THOMAS CONRAD 16-Bit Coax	279
TIARA LANCARD/E 2000 Coax	165

Token Ring

3COM TOKENLINK 4Mbps	386
INTEL TOKENEXPRESS ISA 16/4	537
INTEL TOKENEXPRESS EISA 16/4	693
INTEL TOKENEXPRESS MC 16/4	537
EVEREX SPEEDLINK TR 4Mbps 8-Bit	374
EVEREX SPEEDLINK TR 16Mbps 16-Bit	550
EVEREX SPEEDLINK TR MC 16Mbps	576
EVEREX SPEEDLINK 8-Port TR MAU	570
TIARA 16/4 16-Bit Token Ring Adapter	534
WD TOKENCARD MASTER 4Mbps 16-Bit	438

10 Base-T Twisted Pair Ethernet

ACCTON 10Base-T transceiver (AUI to RJ45)	100
GATEWAY 10Base-T transceiver (AUI to RJ45)	120
RACAL 10Base-T transceiver (AUI to RJ45)	110
TIARA 10Base-T transceiver (AUI to RJ45)	110
3COM 3C503TP 10Base-T	263
3COM 3C523B 10Base-T MC	321
3COM 3C503TP 5PK ETHERLINK II	1,126
3COM 3C507TP 16-Bit 10Base-T (new lower price)	299
3COM 3C507TP 16-Bit 10Base-T 5 PAK	1,603
3COM 3C586 10Base-T 5 PAK	1,368
3COM 3C586 10Base-T Module	304
3COM 3C523B 10Base-T MC 5PK	1,445
ACCTON 10Base-T 8-Bit/16-Bit	171/185
AQUILA 10Base-T 8-Bit/16-Bit	135/165
AQUILA 10Base-T MC	160
INTEL ETHEREXPRESS 16 TP	155
SMC 3008 TP 8-Bit Twisted Pair	188
SMC 16-Bit Twisted Pair MC	231
TIARA 10 BASE-T 8-BIT/16-BIT	193/210
THOMAS CONRAD 16-BIT w/RJ45	279
SMC ETHERCARD PLUS 10T 10Base-T	202
SMC ETHERCARD ELITE 16T 10Base-T	225
SMC ETHERCARD ELITE 16 COMBO	235

External/Pocket Adapters

ACCTON RingPocket TR Adapter	546
AQUILA Pocket Ethernet Adapter BNC	225
AQUILA Pocket 10Base-T Ethernet (RJ45)	225
AQUILA Pocket Arcnet Adapter	195
DLINK Pocket Ethernet Adapter BNC	250
DLINK Pocket 10Base-T Adapter	250
XIRCOM Pocket Arcnet Adapter TP	247

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Bus Mastering 32-bit EISA\$576

XIRCOM Pocket Arcnet Adapter COAX	267
XIRCOM External Ethernet Adapter	413
XIRCOM External Token Ring Adapter	649
XIRCOM Pocket 16/4 Mbps TR Adapter	615
XIRCOM Pocket Ethernet II BNC	345
XIRCOM Pocket Ethernet Adapter 10 BASE-T	378

Hubs, Concentrators & Repeaters

FASTLINK 4-Port Int./8-Port Ext. Active Hub	99/199
THOMAS CONRAD SMART HUB 8 BNC Ports	499
THOMAS CONRAD SMART HUB 16 BNC Ports	719
GATEWAY 22 port 10Base-T Concentrator	1,675
ACCTON 12 port 10Base-T Concentrator	750
AQUILA 4 port 10Base-T Concentrator	725
DLINK 4-port Internal 10Base-T Concentrator	325
EXOS 16 port 10Base-T Concentrator	825
ACCTON EtherRepeater 2 AUI/2 BNC	685
IMC Dual Port Ethernet Repeater BNC/BNC	599
IMC Multi-Port Repeater Chassis	618
IMC BNC Repeater Card for IMC Multi-Port Repeater	250
IMC 10BT Repeater Card for IMC Multi-Port Repeater	150

Network Utilities

NOVELL NETWORK LITE v1.0	89
cc:MAIL DOS platform (user pak req.)	135
cc:MAIL Lan Package for DOS + 8 USERS	135
cc:MAIL Lan Package for DOS + 25 USERS	409
THOMAS CONRAD TXD Network Diag.	150
TIARA Network Inspector	150
CHEYENNE-MONITRIX Network Mgmt.	595
CHEYENNE Utils for NetWare 286/386	262
CHEYENNE ARCserve tape software VAP	792
CHEYENNE ARCserve tape software NLM	1,265
CHEYENNE ARCserve Solo	185
FRESH TECH Net Vision Network Mgmt.	321
FRESH TECH Modem Assist 1-5	321
FRESH TECH Map Assist	226
FRESH TECH Printer Assist	175
DIRECT ACCESS Network	366
XTREE XTNET Network File Manager	305

Uninterruptible Power Supplies

APC UPS Monitor Card for NetWare	80
APC250 (200watt UPS for workstations)	140
APC POWERCHUTE PLUS (VAP/NLM)	99
APC SMART-UPS 400	323
APC SMART-UPS 600	411
APC SMART-UPS 900	650
APC SMART-UPS 1250	844
ELGAR IPS560 (500w)	425
ELGAR IPX1100SL (1000w)	539
ELGAR VAP for UPS	75

ELGAR NLM for UPS	99
EMERSON ACCUCARD internal battery backup	190

Network Fax

GAMMAFAX CP	769
GAMMANET Software	938
GAMMAPAGE	358
INTEL SATISFAXTION Classic Version AT Bus	399
INTEL NET SATISFAXTION Network Fax Software	653
JETFAX II Model 9250 w/PC Send Software	699

Tape Backup Solutions

IRWIN ACCUTRAK STANDARD 120MB	225
IRWIN ACCUTRAK PLUS 120MB KIT	296
IRWIN ACCUTRAK STANDARD 250MB	296
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COLORADO DJ-10 120MB (New Lower Price)	225
COLORADO DJ-20 250MB (New Lower Price)	270
TALLGRASS FILESECURE 500i (500MB)	1,058
TALLGRASS FILESECURE 1000i (1 GB)	1,599
TALLGRASS FILESECURE 1300i (2.6 GB)	2,399
MOUNTAIN FS2100 2.2GB Ext. 8MM, SCSI	4,924

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SYSGEN MAXI 1.3gb int. DAT w/VAP	3,032
SYSGEN MAXI 1.3gb int. DAT w/NLM	3,222
SYSGEN MAXI 1.3gb ext. DAT w/VAP	3,159
SYSGEN MAXI 1.3gb ext. DAT w/NLM	3,348
EXABYTE 2.2 gb int. 8MM w/VAP	3,375
EXABYTE 2.2 gb int. 8MM w/NLM	3,899

LANTastic Products

LANTastic AE-1/T 10Base-T Adapter	136
LANTastic AE-2 Ethernet Starter Kit	535
LANTastic AE-3 Starter Kit	560
LANTastic AE-2 Ethernet Adapter	205
LANTastic AE-3 Combo Adapter	239
LANTastic 2Mbps Starter Kit	385
LANTastic/AI Adapter Independent (single node)	89
LANTastic Network Eye	199
LANTastic Central Station	410
LANTastic Peer Hub	274
LANTastic for NetWare	305

Macintosh Products

Ethernet

3COM 3C543 ETHERLINK/NB	386
3COM 3C563 ETHERLINK/SE	321
Everex SPEEDLINK/SE	253
Everex SPEEDLINK/MAC II	253

10 Base-T Twisted Pair Ethernet

Everex SPEEDLINK/SE TP	253
Everex SPEEDLINK/MAC II TP	253

Cabling Supplies

RG58/RG62 Ratchet BNC Crimper	75
RJ-45 Twisted Pair Crimper	75
RG58 Ethernet BNC-Crimp (100 pak)	125
RG62 Arcnet BNC-Crimp (100 pak)	125
BNC In-Line Splice Connector (10pk)	30
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Arcnet Passive Hubs (5pk)	50
AT&T 10Base-T Ethernet Cable (1000' min)	100
Belden PVC RG58 or RG62 Cable (1000' min)	175
Belden 25' RG58 or RG62 Patch Cable	25

Accessories

CASTELLE LANPRESS BNC/AUI 2P/2S ports	649
CASTELLE JETPRESS BNC/10Base-T	436
HITACHI 1750S CD-ROM Kit	725
INTEL NETPORT for Ethernet	485
INTEL NETPORT for 10 Base-T	475
INTEL NETPORT for Token Ring	830
MICROTEST Cable Scanner Kit	1,110
MICROTEST Pair Scanner Kit for 10 BaseT	1,957
XIRCOM Parallel Port Multiplexor	95

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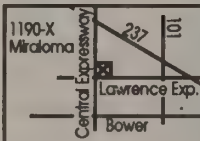
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PRODUCT SPOTLIGHT

Continued from page 156

dia database covering baseball, football, basketball, tennis, hockey, boxing, and the Olympic games. While more than a collection of sports trivia, the program does not attempt to provide the encyclopedic collection of statistics you can find in reference books or the Sports section of any good almanac. Each "record" includes a scanned graphic image, a text file (several hundred words or more), a point on the time line, and a geographic location highlighted on a globe. Some records also include a digitized sound bite. Records are linked and cross-linked in interesting ways, and there is an excellent full-text index you can use to retrieve any occurrence of a specific word. The time line begins in 1869, with the invention of baseball. Geographically, the records are clustered pretty tightly around the Northeastern US and Western Europe.

The package includes four 1.2MB 5.25" and seven 720K 3.5" disks. An elegant installer provides simple explanations of how the program works while it is unpacking and assembling all the files on your hard disk (you must have at least 7.5MB of free space to allow room for all the unpacking).

Although based on the same "engine" as Knowledge Adventure, the two programs are completely independent and cannot be linked in any way. Still under development are high-resolution VGA and Super VGA versions of the program and printer drivers that will provide screen dumps of images that are not restricted by copyright. A CD-ROM version is also in the works.

Moving pictures are much more interesting to sports fans than still images, but usable motion video is still a little beyond the state of the art for disk-based software, as well as a major copyright hassle. Ultimately, the vast storage capacity and convenience of CD-ROM is much more appropriate for this sort of product, but until there is a sufficient installed base of CD-ROM drives, it is hard to develop a mass market for products of this nature. Meanwhile, Knowledge Adventure's proprietary image compression technology offers a tantalizing taste of multimedia while we are waiting for the market to develop. (4502 Dyer St., La Crescenta, CA 91214. 818/542-4200)

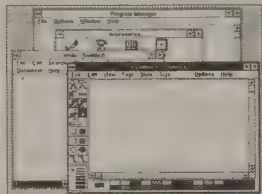
User Interface: 9

Graphics: 8

Sound: 6

Overall Value: 7

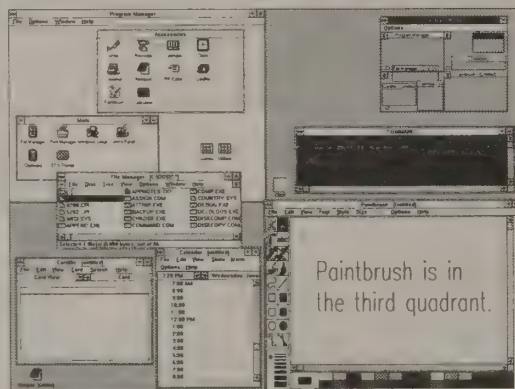
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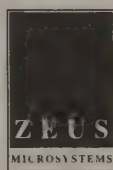
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SUPER TETRIS

Designed By: Alexey Pajitnov, Vladimir Pokhilko, et al.

Published By: Spectrum HoloByte

For: MS-DOS (640K, Hercules, CGA, EGA, or VGA graphics, audio cards, joystick and mouse supported), Macintosh version coming soon

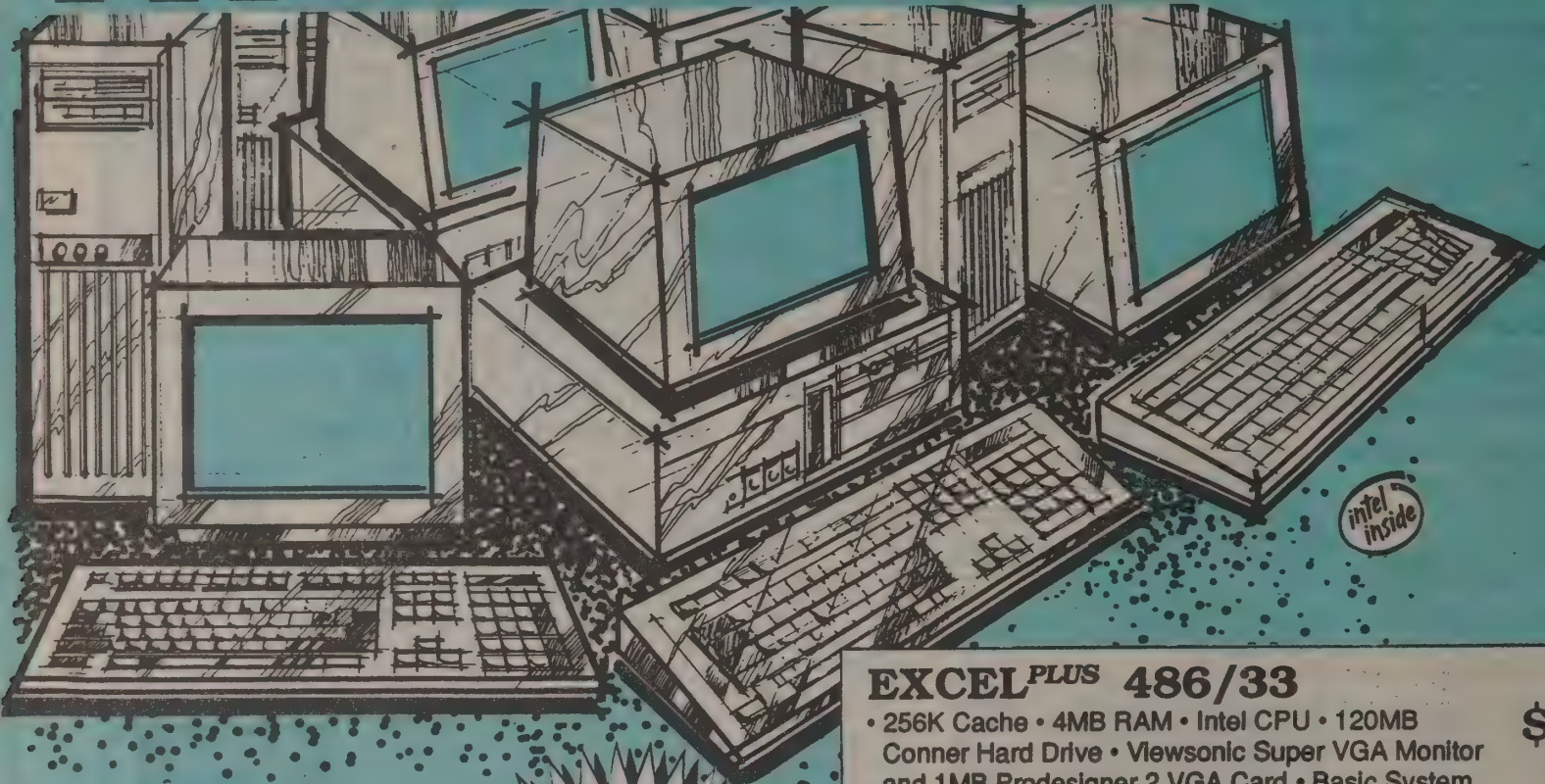
List Price: \$49.95 (Super VGA Windows 3.0 upgrade available by mail for additional \$24.95)

Designed and programmed in Russia, Tetris has been a monster hit in the West and Japan on a wide variety of computers and game machines. The original version appeared a few years ago—simple enough to be learned in a few minutes but challenging enough (we thought) for endless hours of entertainment. But the depths of the Russian soul provide a bottomless source of imaginative new tortments for players, and the long Russian winter gives programmers plenty of time to perfect them.

Super Tetris follows the basic Tetris-Welltris-Faces-Wordtris concept of blocks falling into a pit. But now the pit is partially filled with underwater rubble. When you maneuver the falling blocks to form complete lines, you are rewarded with bombs that can be used to erase mistakes or blast away the rubble, revealing hidden treasures. The more lines you complete at one time, the bigger the block of bombs you receive. There are many different kinds of treasures:

Continued on page 166

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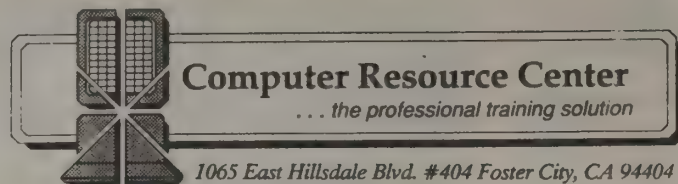
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PRODUCT SPOTLIGHT

Continued from page 162

squares that award you extra pieces, squares that turn into a bubble that moves upward filling all empty spaces until it reaches the water line, squares that turn the next falling piece into a bomb, etc.

In effect, Super Tetris requires you to play two games at once—the standard Tetris challenge of completing lines and avoiding gaps, plus an additional requirement to empty the rubble-filled pit before you can advance to the next level. You have only a limited number of falling pieces available to complete each level. There are ten levels of difficulty. At each successive level the pit is deeper and the pieces fall more quickly.

The bouncy musical background, based on Russian folk tunes, was composed by Ed Bogas. The package includes one 720K 3.5" and two 360K 5.25" disks. After installation, the game's thirty-five files take up 84K on your hard drive.

Before you can play the game you have to type in the answer to a circus trivia question (from the 26-page manual). There are various two-player options—competitive, cooperative, or "head-to-head" (two copies of the game running on separate computers connected by null-modem cable or a network).

User Interface: 9

Graphics: 9

Sound: 9

Overall Value: 9

SPELUNX AND THE CAVES OF MR. SEUDO

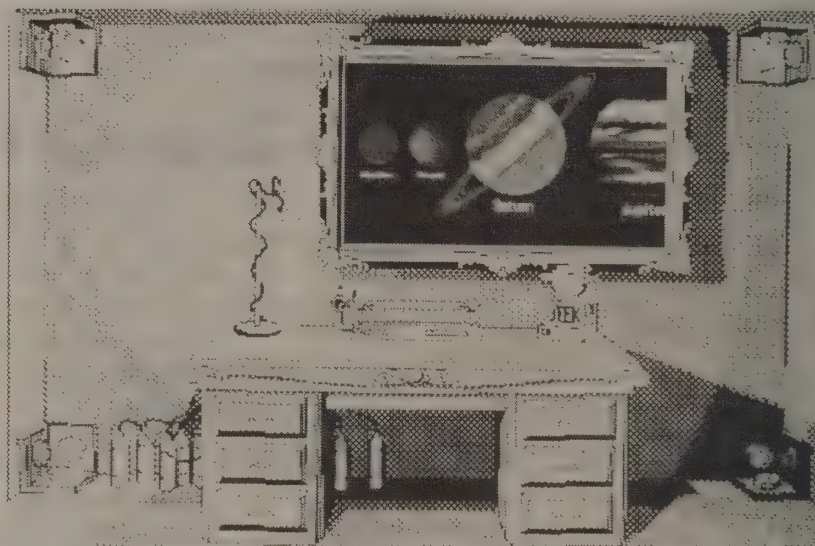
Designed By: Rand and Robyn Miller

Published By: Brøderbund

For: Macintosh (1MB monochrome, 2MB color, 4MB for color under System 7)

List Price: \$49.95

Robyn and Rand Miller are two brothers who constitute Cyan Software, which specializes in the creation of imaginative worlds based on HyperCard. (Rand concentrates on scripting and XCMDs, Robyn concentrates on artwork, animation, and rendering.) Their previous interactive adventures, The Manhole and Cosmic Osmo, pushed the limits of HyperCard 1.X. In Spelunx, they push the limits of what can



be done with HyperCard 2.1, heavily supplemented with Macromind Director animations and 8-bit color.

The world of Spelunx is a simple honeycomb maze of rooms and tunnels that you can rearrange once you discover the secret of the Cave Builder. Designed for users aged five and up, the caves contain over twenty different games and activities, ranging from the seriously instructional to the delightfully bizarre. The designers still remember "the things kids dream about: fantastic stories, peculiar animals, games, characters, wild plants, music, outer space, art, and on and

Continued on page 168



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V-20-10	10	512K Module	140
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WEITEK		Mdl 70-061: 121; 555X; 655X Exp Brd	
3167-20 20 MHz	300	1 MB Module	95
3167-25 25 MHz	350	Mdls 70-061: E61; 121; 50Z;	
3167-33 33 MHz	400	55LS; 55SX; 655X: P70;	
4167-25 MHz	600	2 MB Module	179
4167-33 MHz	700	Mdls 70-A21: A61, B21, B61	
CYRIX		2 MB Module	150
83087-16 16 MHz	145	Mdls 555X: 655X: 55LS, 65LS	
83087-20 20 MHz	145	4 MB Module	370
83087-25 25 MHz	145	Mdls 80-111; 121, 311, 321	
83087-33 33 MHz	155	2 MB Card	145
835X87-16 16 MHz	100	Mdls 80-A21; A31	
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AMD		2-8 MB Exp Brd	489
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ULSI		2 MB Module	285
US 83C87 16 MHz SX	120	PS/1 Home System	
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on..." The only universal rule for interactive adventures is click on everything, and see what happens.

In Professor Spelunx's office, on the lower level of The Nemo Room, you'll find a book that gives the history of the caves. You'll also find a blank diary you can write in, and a mug that apparently can't be replaced when you knock it off the desk and break it (the coffee maker will dump fresh-brewed coffee onto the floor). Upstairs is a telescope that can show you spinning color animations of some of the planets, based on actual NASA imagery. Behind a secret door lies Blacksmith Caverns, where you can pitch rocks into a variable-depth well, seeing how long it takes them to hit bottom, and how long it takes the echo to arrive.

In another room you'll find a terrarium with an animated lizard, whose activity depends on the temperature you set (and how you feed him). Nearby is the wonderful Yodel Toaster game, in which you move your toaster to bounce falling slices of bread (being careful not to burn them). One of the most sophisticated activities is the Stamp Animator, where you can create and save little movies using animated color icons. Then there's the Programmable Polka Machine, where you create a sequence of instructions for an animated dancing figure.

One of the more technically impressive activities is the Pinehead Puppets, animated talking heads that can take direct input from the built-in microphone of newer Macs.

Spelunx requires 5MB of free hard disk space and System 6.0.7 or later. The program is compressed (using DiskDoubler) onto four disks, plus one disk with the latest version of HyperCard. The design apparently includes hooks for plugging in additional rooms and activities, but there was no indication at the time of publication how, or when, these might be made available to users. Spelunx is a wonderful example of noncompetitive, entertaining, and educational Macintosh software that could never be created on any other computer. (Brøderbund, Inc., 500 Redwood Blvd., Novato, CA 94948-6121. 415/382-4400)

Graphics and Animation: 9

User Interface: 9

Sound: 8

Overall Value: 9

NEWS FLASH:

On Jan. 9, 1992, Disney Software announced that they are starting a line of grown-up games under the Buena Vista label. The first title, Heaven and Earth, based on the Japanese card game Hanafuda, will be published for MS-DOS and Mac in the second quarter of '92. Another scheduled title is Dog Eat Dog, a humorous simulation of office politics.

REVIEWS

PC SOFTWARE

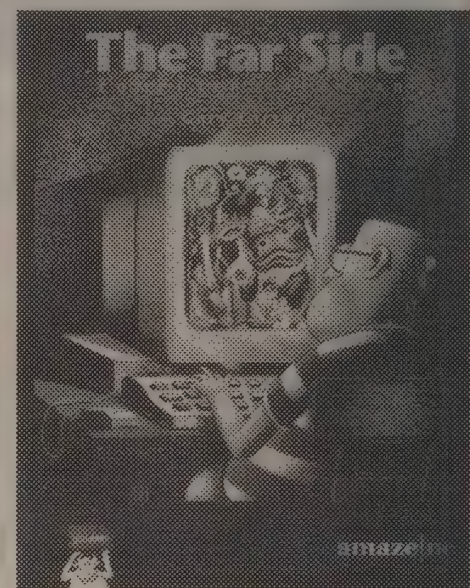
THE FAR SIDE COMPUTER CALENDAR

Published By: Amaze

List Price: \$69.95

Reviewed By: Woody Liswood

What happens when you take the fun and enjoyment of The Far Side cartoons by Gary Larson, add computer graphics and anima-



tion, combine it with a calendar, and make sure it looks great on both your computer screen and printout? Well, what you get is The Far Side Computer Calendar.

Each event, displayed on a daily, weekly, monthly, or yearly basis, has its own icon, which may or may not be animated—you'll have to watch them closely to see when they move. For events that you may forget, such as the staff meeting every Tuesday at 2:00 pm, the alarm will help remind you.

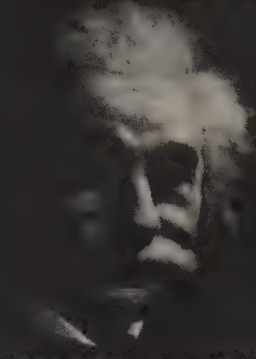
When you need to print sections of the calendar, you have a choice of portrait or landscape, as well as a set of report types and page sizes. You can even add a special header and footer to help customize your printouts.

Installation is easy. Run install, answer some questions, and let the computer do the rest. If you send in the registration, you'll get a mug and Amaze will notify you when it is time to purchase another twelve months of Far Side graphics.

The animation is great. The Far Side, with moving images, is even better than The Far Side you see in our local papers. I will not tell you what crash landed when I did one installation. Only to warn you that there are more of them around that will fly across your screen when you least expect it.

If either you or your best friend use Win-

If Einstein Were Alive today, He'd Have an



High Performance Monitor

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Front panel adjustment plus 15° tilt & swivel base for easy viewing.

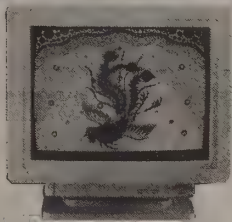
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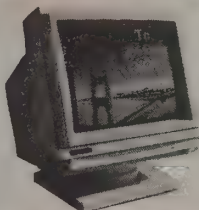
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- 740 x 480 res. at 31.5KHz HF
- 16 grey levels, soft white color
- 30MHz Bandwidth

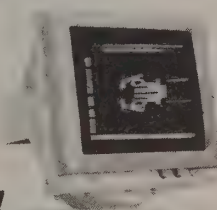
SM-1411



TTL Mono

- 14" Flat screen, dark tint tube
- Anti-glare, amber & white tube
- 720 x 350 res at 18.432KHz HF
- 20MHz Bandwidth

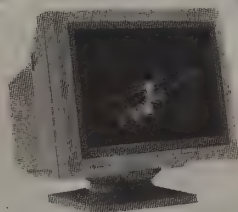
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- 20MHz Bandwidth

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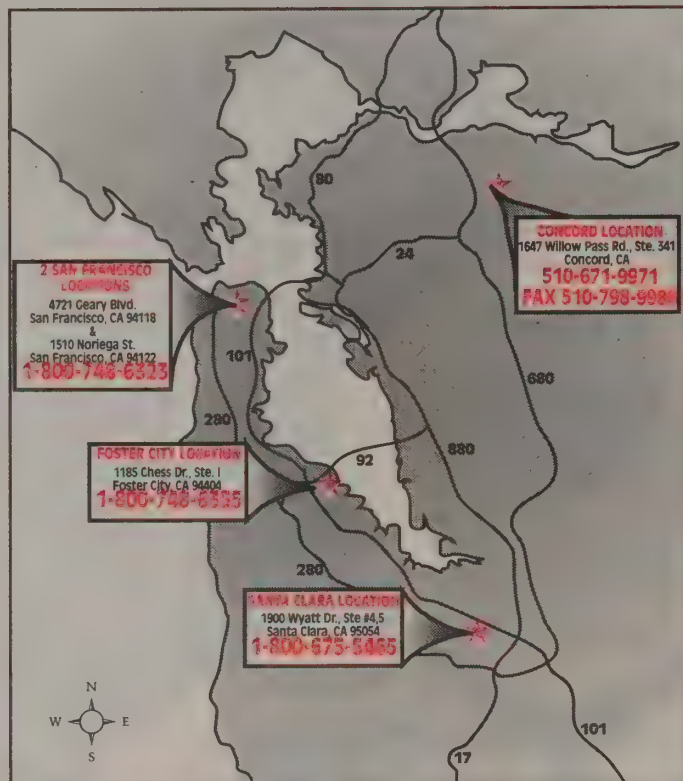
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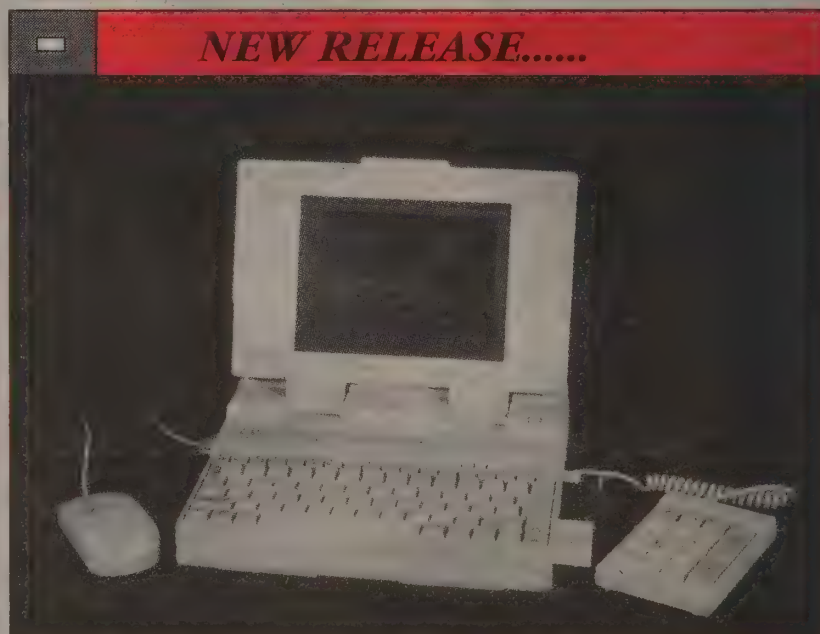
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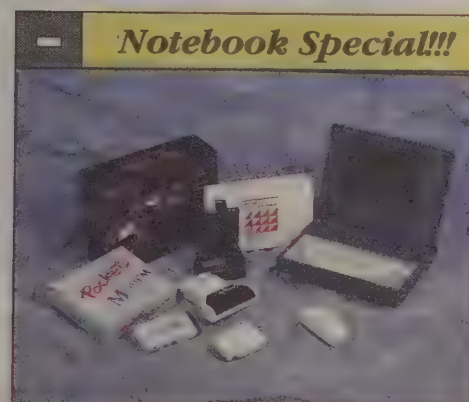
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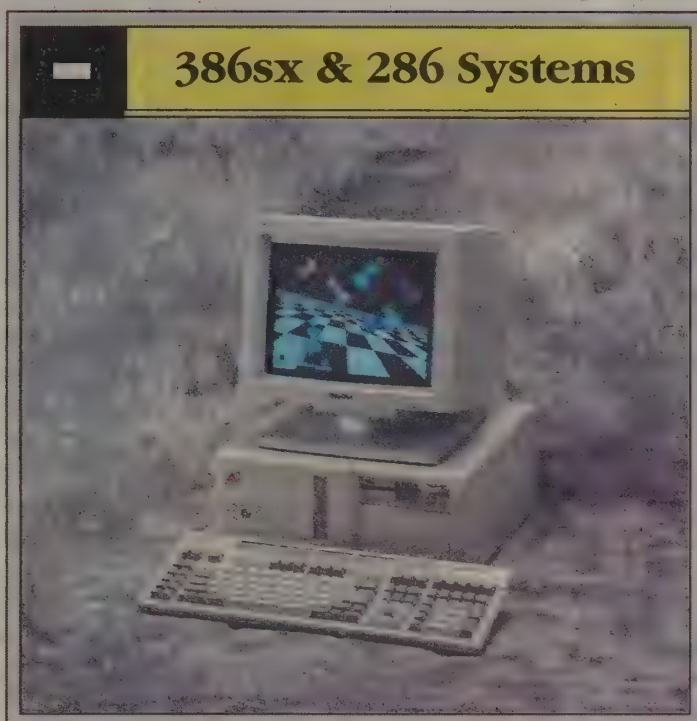
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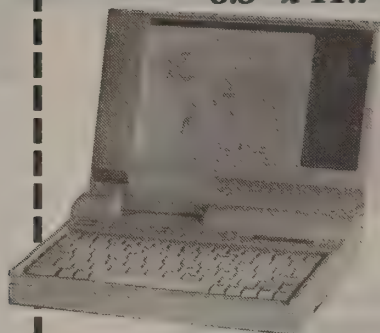
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Continued from page 168

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Published by: Campbell Services

List Price: \$129.95

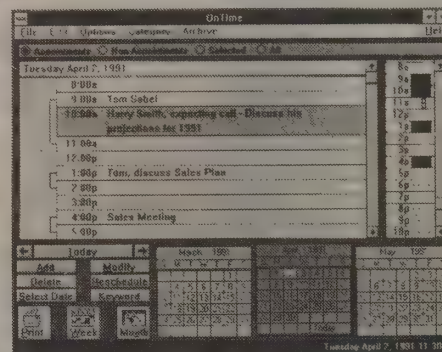
Reviewed by: Woody Liswood

I am a student of calendar and time management programs. In my search for the perfect one, I found On Time for Windows, which has the best printouts of any time management or PIM that I have used.

On Time for Windows works much the same way as On Time for DOS. Working with a database-type display, On Time allows you to

label the event, set a category, and enter the frequency, as well as include the date, time, and duration, and even set an alarm so that your computer can remind you to do things.

When you view On Time you see a day planner, showing time, months, and a gantt chart blocked for events already scheduled. A set of buttons lets you switch between daily, weekly,



and monthly views. Another series of buttons lets you add, modify, delete, or reschedule your events.

For me, the best part of On Time for Windows is the printouts. I have multitudes of appointments and travel more than most. On a weekly basis, I print my calendar and distribute it to others in the organization so they can keep up with my ever-changing schedule.

There are a variety of choices for printing the type of report that best suits your working style. You can print a daytimer, a weekly grid, a monthly grid, a trifold print, and a duplex print among others. I particularly like the trifold report. It gives me my calendar and appointments designed to be folded lengthwise, in thirds.

On Time for Windows is good stuff. If you liked On Time for DOS, this version should keep you happy. If you like good looking and easy-to-use printouts of your schedules, On Time for Windows is a must. (Campbell Services Inc., 21700 Northwestern Hwy., Suite 1070, Southfield, MI 48075. 313/559-5955)

PHONEDISC CALIFORNIA+ QUICKREF+

Published By: PhoneDisc USA

For: IBM XT, AT, or PS/2 with 512K RAM, DOS 3.1 or better, CD-ROM drive

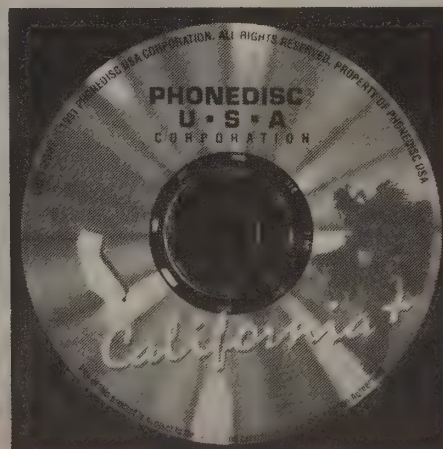
List Price: PhoneDisc CA annual subscription \$995, QuickRef+ \$299

Reviewed By: Matthew Leeds

PhoneDisc Corp. provides a variety of CD-ROM discs with telephone

listing and a search engine. There is not much to say about the information contained on the disc; read one phone book and they all look alike afterwards. What makes this product work is the search engine and cross indexes provided.

QuickRef+ contains the nation's most frequently called telephone numbers. These include key government contacts, manufacturers, associations, schools, libraries, travel industry, media, profes-



Continued on page 178

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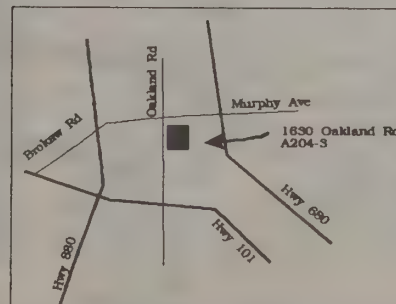
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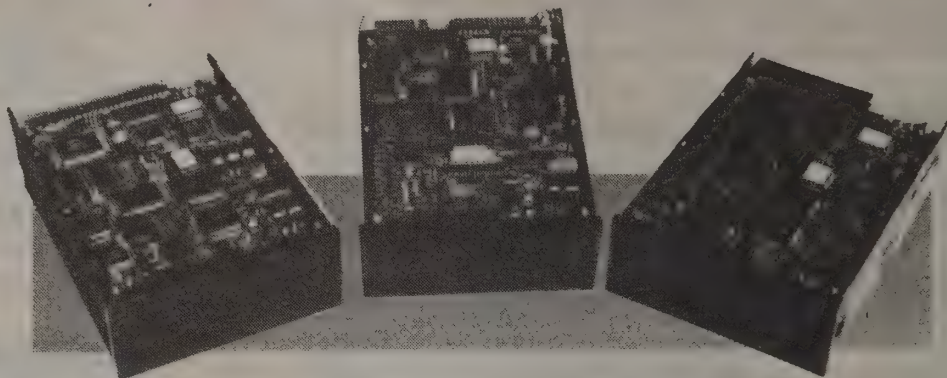
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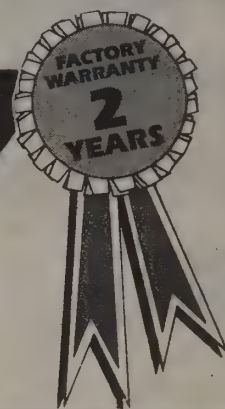
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EXTERNAL							
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AVERAGE SEEK	33.5	35	25	30	33	25	
MAX SEEK	8.42	8.61	8.33	8.33	8.33	8.31	
AVERAGE LATENCY							
GENERAL INFO.							
BUFFER SIZE	64K	64K	32K	32K	64K	64K	
WATTS TYPICAL	9	4.5	11	10	11.4	8.8	
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MTBF	50,000	50,000	150,000	150,000	50,000	50,000	
WARRANTY	2 YEARS	1 YEAR	1 YEAR	2 YEARS	2 YEARS	2 YEARS	
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NON-OPERATING	50	50	50	50	60	50	
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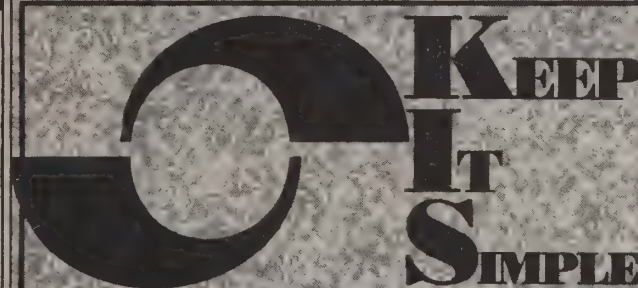
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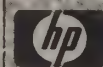
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PRODUCT SPOTLIGHT

Continued from page 174

sionals, business, and toll-free numbers accessible from the United States. Listings can be searched via name, address, telephone number, key words, SIC codes (Standard Industrial Classification), or several other classification indices.

PhoneDisc California+ includes almost fourteen million white page listings covering the entire state of California. Searches may include name, address, telephone number, area code, or zip code. A recent Supreme Court ruling that printed white page telephone directories do not qualify for copyright protection will allow the inclusion of information derived directly from all of the telephone directories published. The disc I reviewed had some gaps in the listing, evidenced by missing phone numbers when viewing the database by street address.

PhoneDisc Corporation also offers titles that include the entire United States, just New York and New England, Canada, and Germany. All titles use the same search engine. I found it to be reasonably easy to use (for a DOS product), and on larger-sized searches the response time was acceptable. Searching for every Smith in the phone book let me take a long lunch break. (PhoneDisc USA Corp., 8 Doaks Ln., Little Harbor, Marblehead, MA 01945. 617/639-2900)

LANGUAGE ASSISTANT SERIES

Published By: MicroTak Software

List Price: \$79.95

Reviewed By: John Cowan

The inexpensive language translator has arrived. If you need to translate from English to Spanish, French, German, or Italian, try one of the Language Assistant series from MicroTak.

A simple translation editor allows you to enter paragraphs or pages of text for translation sentence by sentence. The results are good, but they aren't perfect—asking a fast, compact PC program to render the verb "to be" correctly in Spanish is a bit much. Instead, when a Language Assistant is uncertain how to handle a word or the construction, it stops, suggests several alternatives, giving you the choice. If you don't like the result, you can tell it to try again another way.

When the translation is complete, the Assistants can send the results to a printer or a file. They can also create a document giving the English and other language renditions of each sentence, side by side, making it easier to edit the document as a whole.

The Language Assistants do not, as yet, translate sentences to English, a capability which is being developed. Instead, they offer a menu mode which allows you to type individual foreign words, view their entries straight from the dictionary, and drop the

English equivalent into a document. Or you can use this feature to construct keyword lists for documents you are reading rather than translating. The menu mode is memory resident for use in the background with your own word processor.

The Language Assistant dictionaries contain approximately 30K of words, plenty for general work. The programs also provide a fairly complete grammar, as well as conjugations of all the verbs in their dictionaries. A single keystroke steps through the tenses.

The Language Assistants are fast enough for use on a PC, barely, but are much more convenient to work with at AT speed. (MicroTak Software, 4655 Cass St., Suite 214, San Diego, CA 92109. 619/272-5700)

PKLITE

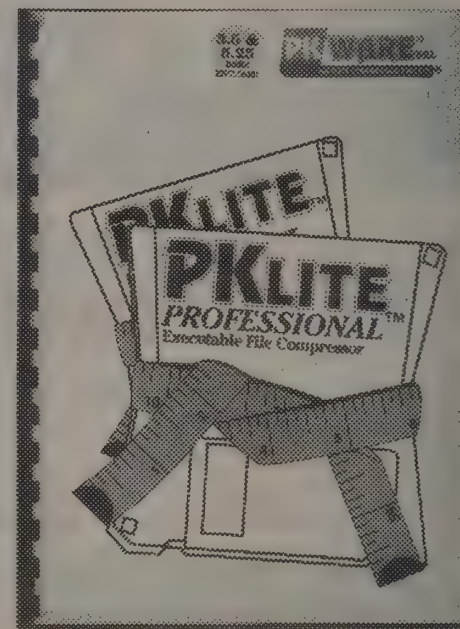
Published By: PKWare

List Price: \$47

Requires: DOS 2.0 or higher, 256K RAM

Reviewed By: Craig Menefee

The longer you have a computer, the more disk space you will need. It's inevitable. Applications always get bigger, never



smaller, and each year there are more of them. Hard drive prices are dropping, but they're still not cheap. On laptops, a larger hard drive may not even be an option.

PKLite will stretch your storage dollars by compressing files that have .COM or .EXE extensions. Through compression you may gain 4 to 6MB on a 20MB hard disk, with no new hardware required.

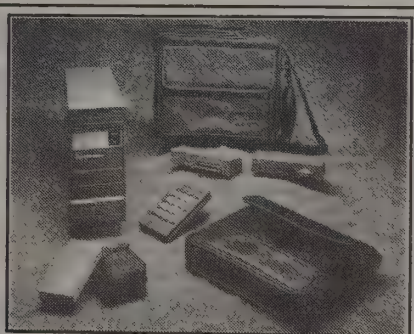
Compressed executables, as the files PKLite produces are called, make no extra demands on the user. You enter a program's name at the DOS prompt or choose it from a menu or shell, like you regularly do. The program expands itself into memory and runs normally.

PKLite lacks a friendly shell, but it is fairly

Continued on page 182

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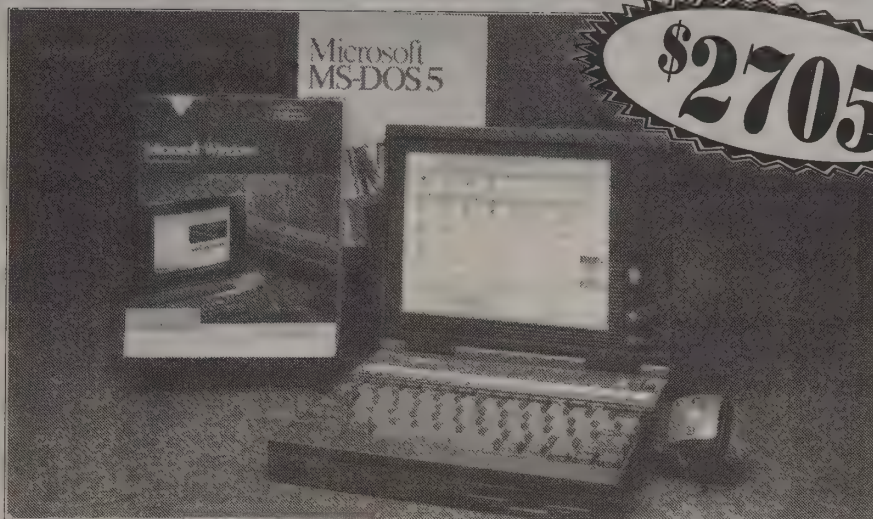
The TM3000 WinSX offers a variety of options

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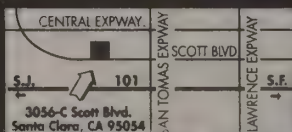
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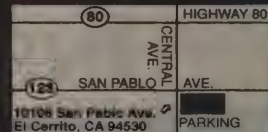
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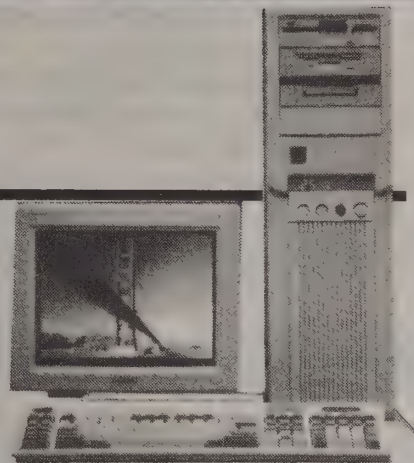
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CAD/GRAPHICS SYSTEM

UCS 486-33MHz
256K Cache System

\$2155

- 4MB RAM expandable to 32MB on-board
- 1.2 and 1.44MB floppy drive
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- 1:1 interleave 2FL/HD controller
- 2 serial, 1 parallel port
- Super VGA Color Monitor(1024x768)
- 1MB 16-bit VGA Card (1024x768)
- Real time clock/calendar with battery back-up
- 101-key enhanced keyboard
- 3-Button Microsoft compatible mouse
- Vertical case w/power supply



UCS 386-33MHz
64K Cache System

\$755 Base System

- 1MB RAM expandable to 32MB on-board
- 1.2 & 1.44MB floppy drive
- 1:1 interleave 2FL/HD controller
- 2 serial, 1 parallel port
- Real time clock/calendar with battery back-up
- 101-key enhanced keyboard
- 3-Button Microsoft compatible mouse
- Mini Tower case w/power supply

SuperVGA
120MB
\$1549



UCS 386-25MHz
System

\$655 Base System

- 1MB RAM expandable to 16MB on-board
- 1.2 & 1.44MB floppy drive
- 1:1 interleave 2FL/HD controller
- 2 serial, 1 parallel port
- Real time clock/calendar with battery back-up
- 101-key enhanced keyboard
- 3-Button Microsoft compatible mouse
- Mini Tower case w/power supply

SuperVGA
120MB
\$1449



UCS 386SX-16MHz
System

\$555 Base System

- 1MB RAM expandable to 8MB on-board
- 1.2 & 1.44MB floppy drive
- 1:1 interleave 2FL/HD controller
- 2 serial, 1 parallel port
- Real time clock/calendar with battery back-up
- 101-key enhanced keyboard
- 3-Button Microsoft compatible mouse
- AT case w/power supply

SuperVGA
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ADD-ONS & OPTIONS

- 14" Amber Monitor \$100
- VGA Color Monitor 280
- Super VGA Color Monitor 325
- Sony CD-ROM (w/Cables) 495
- Colorado 120MB Tape Back-up . 275
- Colorado 250MB Tape Back-up . 335
- Tseng Lab VGA Card w/1MB 125
- Maxtor 338MB ESDI Hard Drive **CALL**
- Maxtor 676MB ESDI Hard Drive **CALL**

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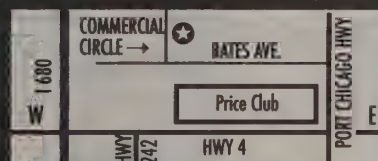
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PRODUCT SPOTLIGHT

Continued from page 178

bulletproof. Running it is simple. The program automatically skips programs that can't be compressed and files not ending in .COM or .EXE. It gives you an option to compress or skip programs that, for technical reasons, might not run correctly when compressed.

If you do run into problems, an -X option extracts a compressed file into its original, uncompressed form. A -B option creates uncompressed backup copies for extra safety, though I never ran into a situation where I needed such a backup.

You may not be able to squeeze blood from a stone, but, for \$47, PKLite does a fine job of squeezing every last drop of usable storage from your hard disk. (PKWare, Inc. 9025 N. Deerwood Dr., Brown Deer, WI 53223. 414/354-8699)

THE NEW GROLIER ELECTRONIC ENCYCLOPEDIA

Published By: Grolier

List Price: \$395 (PC version, \$395)

Reviewed By: Summer Yacco

Have you heard of an aardwolf? If not, The New Grolier Electronic Encyclopedia has all the details. In fact, it tells about almost everything. On a single CD-ROM you receive twenty-one volumes of the Academic American Encyclopedia; and there are versions for both the Apple Macintosh and the IBM PC. For the Mac version you will need a 256-color display system to see the maps.

To search for information you can browse through four indexes: by title, word, picture, or map. You can also search by selecting words you find in the articles. Articles can include text, pictures, outlines, tables, maps, fact boxes, and sounds. You can open more than one article at a time, also leaving book-markers to return easily to interesting information.

I like this program because it's fast, easy to use, and can help me with my grades. It's better than getting a big book and having to sort through hundreds of pages. A regular encyclopedia takes up a lot more room, and you can't copy the information without writing it all down again or finding a photocopy machine. I don't think there is any encyclopedia that is easier or faster to use. (Grolier, Inc., Sherman Turnpike, Danbury, CT 06816. 1-800-356-5590, 203/797-3500)

MACINTOSH SOFTWARE

TOUCHBASE 2.0

Published By: After Hours Software

List Price: \$120

Reviewed By: Mikael Blaisdell

Reviewing software can be fun, especially when the mail brings a package that fills a



definite need. TouchBase provided the perfect opportunity to update and modernize my older, self-designed DBMS-created mailing list I use for my consulting practice.

Beginning with TouchBase v1.0, I put it to immediate, practical use. The first thing I did was import data from a PC-based, multiuser, proprietary O/S into TouchBase on my venerable Mac Plus, printed labels, envelopes, prospecting worksheets, and sorted client listings. I then exported data to a merge file in my word processor for a series of letters. Everything worked perfectly, easily—it was a pleasant experience after suffering for so long under my old kludged system.

The strengths of TouchBase lie in the design; the manufacturer anticipates and effectively handles all the standard sorts of usages that the average person is likely to need. It prints address and phone books, labels, fax cover sheets, envelopes, and detailed listings per entry, plus permitting a wide variety of arrangements (including your own customized ones) of general listings of all or selected parts of the database. TouchBase will even dial your phone, if desired. Sorting can be done on any field, using exact matches, begins-with, or contains specifications. Version 2.0, which arrived as I was working on this review with v1.0, provides multiple-level sorts as well as a host of other improvements on an already powerful product.

TouchBase also handles multiple databases with ease. I set up about ten separate databases and imported/exported records amongst them all with no difficulty. The package is rated as network-capable, but I didn't have an opportunity to test this aspect. The manual is well written; while it perhaps could use more examples, I was able to find everything I needed to install and use the system. Customer Support was very helpful; I got through immediately, and the technician answered my questions very quickly (and correctly!). All in all, TouchBase is a delight to use—and I do. (After Hours Software, Inc., 5636 Van Nuys Blvd., Suite B, Van Nuys, CA 91401. 818/780-2220)

MR. FILE 1.1.1

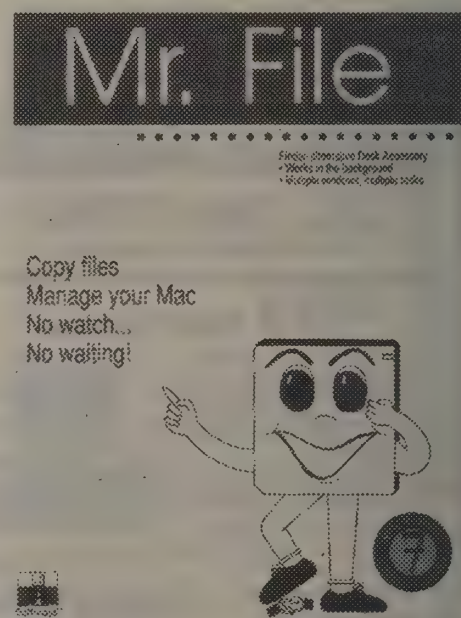
Published By: Softways

List Price: \$99, including free unlimited support

Reviewed By: Michael Robin

Alternatives to the Macintosh Desktop Finder are not new, but I have never felt an urgency to use one. Though I had a copy of Mr. File, it was just another DA (Desktop Accessory) on my Mac, until one day I thought "there must be a better way to copy a group of files to a disk." Copying to or from various folders to another disk entails an array of steps that quickly become tedious. That was when I decided to see what Mr. File really can do.

Mr. File is a Finder-alternative Desk Acces-



sory that lets you view, organize, and work with your files and folders. It provides four types of windows to work in: Folder, Find, Selection list, and Quick windows. They all contain the same Launch, Copy, Rename, Move, and Erase buttons with a progress meter and signal to monitor jobs.

The traditional Finder does not tell you the size of a folder, only individual files. Mr. File will show this information with a click on the double question marks in the size category.

The Find, Selection lists, and Quick windows let you group together and work with files that are not in the same folder. This lets you easily launch a combination of documents that reside in different folders or even different disks. This is particularly helpful when opening text documents, such as files you recently downloaded from COMPU-SERVE or other networks.

Mr. File quickly became a regular addition to my work. Although the Macintosh Finder is an excellent tool, there is always room for improvement and Mr. File offers just such an improvement. (Softways, Inc., 5066 El Roble, San Jose, CA 95118. 408/978-9167. Compu-Serve: 70632,436)

Continued on page 188

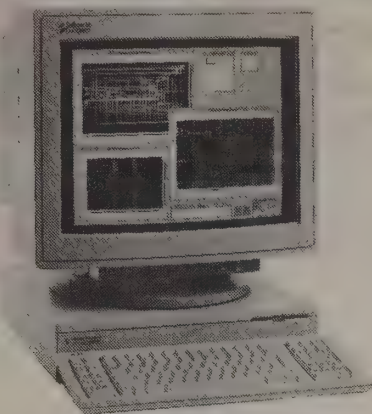
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Included Software:

Solbourne OS/MP (derived from SUN OS), C Compiler, NFS, TCP/IP, Open Network Computing, Pixrect Graphics Library, SUN CGI, SUN Core, Transcript, SunView, X11 (with PEX, 1152x900 Resolution), Solbourne X Window Manager (support both Motif & Open Look), Object Interface Library (X Window toolkit)

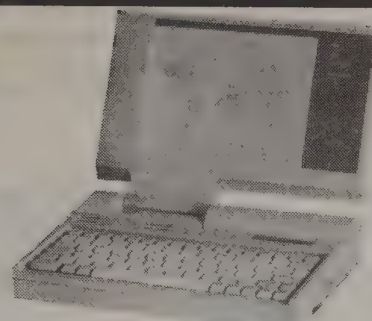


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** X TERMINAL/SERVER **

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UHC UNIX V Rel 4:

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User Environment Network/Open Look/Motif
Options (1/2/all options) 250/420/590
Developer Environment 2 User 845
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Developer Environments Network/Open Look/Motif
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ESIX UNIX V Rel 4:

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Standard System Unlimited License w/DOC 895
Development System 2-User License w/DOC 1100
Development System Unlimited License w/DOC 1440
ESIX Graphics I (Open Look) w/DOC 276
ESIX Graphics II (Motif) w/DOC\$276

INTERACTIVE UNIX:

UNIX System V Rel 4.0 Starter Kit\$1036
UNIX System V Rel 4.0 Complete System 2236
UNIX System V Rel 4.0 Multi-User Extension 396
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UNIX/386 Network Platform (2/3+ User) 850/1669
UNIX/386 Workstation Platform (2/3+ User) 1100/1825
UNIX/386 Application Developer (2/3+ User) 1350/2000
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UNIX/386 Workstation Developer (2/3+ User) 1595/2229

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Netware V2.2 10 User 1250
Netware V2.2 5 User 575
NE-1000 Compatible 8 Bit Ethernet Card 98
NE-2000 Compatible 16-Bit Ethernet Card 110
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LAN Watch 1080

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486/33 MHz EISA 64K Cache 1495
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486/25 MHz 64K Cache 790

486SX/20 MHz 64K Cache\$660
486SX/20 Non-Cache 645
386/40 MHz 64K Cache 585
386/33 MHz 64K Cache 579
386/25 MHz 64K Cache 555
386/25 MHz Non-Cache 510
386SX/25 MHz 425

386SX/20 MHz\$400
386SX/16 MHz 385
286/16 MHz 325

Standard Systems Include:

1 MB RAM, 1.2MB 5.25" & 1.4 MB 3.5" Floppy Drive, 1:1
Interleave HD/FD Controller, 2 Serial & 1 Parallel Ports, 101-Key
Enhanced Keyboard, Mini or Baby Case w/200W Power Supply.

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Video Card Options:

MGP Card w/1 P\$12
Trident 512K VGA Card 52
Trident 1 MB VGA Card 76
Tseng Labs 1 MB (4 Layer) 112
Diamond SpeedStar 1 MB High Color 190
Orchid ProDesigner IIs 175

Monitor Options:

(NI: Non-Interlaced, All VGA supports 1024x768 or 1280x1024)
12" Mono\$72
14" Mono 95

14" VGA Mono\$125
14" Amazing Super VGA (.39mm) 248
14" Relisys (.28mm) 285
12" Viewsonic 6 NI VGA (.28mm) 355
14" Amazing NI VGA (.28mm) 345
14" Amazing NI VGA (.25mm) 500
14" Viewsonic 5 NI VGA (.25mm) 485
14" Sony 1304HG NI (.25mm) 580
15" NEC 3GFX NI VGA (.26mm) 640
16" Mitsubishi NI VGA (.31mm) 950
17" Samsung NI VGA (.31mm) 889
17" Amazing NI VGA (.26mm) 978
17" Toshiba NI VGA (.26mm) 1390
20" Hitachi NI VGA (.31mm) 1955

Hard Drive Options:

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Western Dig. 80 MB 18ms 265
Maxtor 80 MB 17ms 270
Maxtor 130 MB 15ms 355
Conner 120 MB 19ms 325
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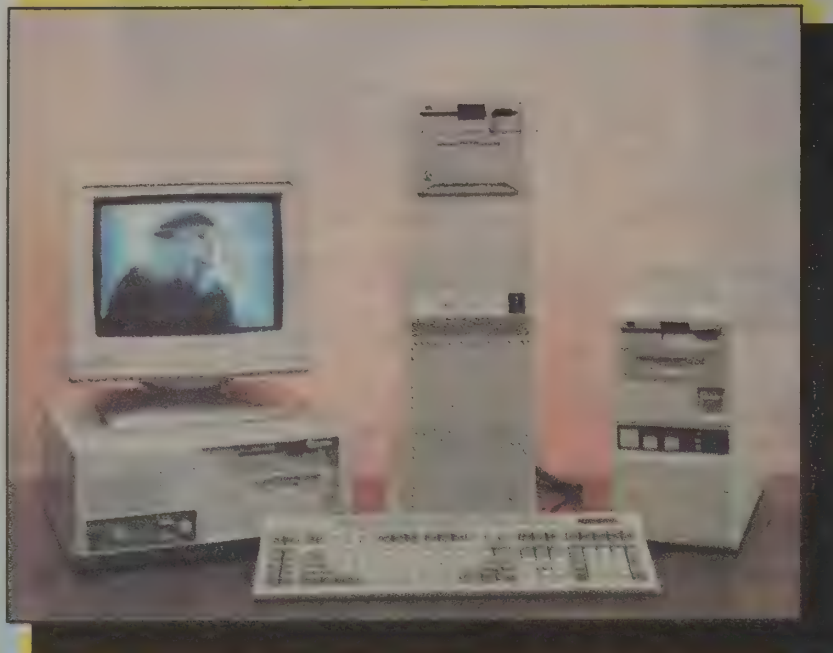
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486-33C EISA w/64k cache	\$1499
486-33C ISA w/64k cache	\$899
38640C w/64k cache	\$634
386-33C w/64k cache	\$599
386-25	\$499
386-20SX	\$459
386-16SX	\$399
286-16	\$299

Peripherals and Accessories

40MB/28ms (IDE)	\$163	150MB/18ms (ESDI)	\$648
89MB/18ms (IDE)	\$269	200MB/18ms (IDE)	\$559
124MB/19ms (IDE)	\$359	Call for other hard drives	
14" SVGA (1024x768, 0.28) Monitor & Card	\$348	Citizen 200GX (9-pin)	\$154
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12"/14" Mono Monitor w/ MPG Card	\$88/108	Panasonic KX-P1180 (9-pin)	\$149
NEC 4D/NEC 3D/NEC 2A	\$998/598/398	Panasonic KX-P1123 (24-pin) ..	\$228
Sony 1304 HG (1024x768, -0.25)	\$589	Panasonic KX-P1124 (24-pin) ..	\$229
Nanao 9080 i (16" SuperMultiscan)	\$1049	Panasonic KX-P1624 (24-pin) .	\$368
Trident IMB (1024x768)	\$74	Windows 3.0 + Mouse	\$59
Tseng Lab (1024x768)	\$109	Internal Modem 2400 Baud	\$49
Orchid Prodesigner IIs w/1MB	\$149	Fax Modem (9600 Fax, 2400 Modem)	\$95
Orchid Prodesigner Sierra w/1MB.	\$179	Logitech Mouseman serial (400dpi)	\$66
		Diamond Speed Star w/1MB	\$178
		Motherboard with CPU	CALL
		Hi-Resolution Mouse	\$19
		MS DOS 5.0	\$49
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- Dual Hard/Floppy IDE Controller
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- Choice of Mini-Tower, Medium-Tower, Full-Tower, or Desktop (All with 285 Watt Power Supply)

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Video Upgrade Options

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- Orchid Pro Designer IIs w/1MB add \$75
- Orchid Pro Designer IIs w/1MB and Orchid Sierra High Color add \$99
- Fahrenheit 1280 add \$159

Monitors

- 14" SVGA Viewsonic 6 1024x768 non-interlaced ..add \$99
- 14" SVGA Sony CPD 304 1024x768 add \$275
- 14" SVGA NEC 4FG 1024x768 non-interlaced add \$499
- 15" Relisys 1520 1024x768 non-interlaced add \$150
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- 1.44MB 3.5" Floppy Drive
- 120MB Conner, Maxtor or Quantum Hard Drive (Add \$200 for 200MB)
- 1 Parallel, 2 Serial, Game Ports
- High Quality 101 Enhanced Keyboard
- 1024x768 .28 DOT Pitch 14" Color Monitor (Add \$65 for non-interlaced)
- 1MB Trident SVGA Card
- Choice of Mini-Tower, Medium-Tower, Full-Tower, or Desktop (All with 285 Watt Power Supply)

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Option: Only \$1699 for 20SX
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Stargate

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(Add \$550 for EISA board)



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- 1.2MB 5.25" Floppy Drive
- 1.44MB 3.5" Floppy Drive
- 120MB Conner, Maxtor or Quantum Hard Drive (Add \$200 for 200MB)
- 1 Parallel, 2 Serial, Game Ports
- High Quality 101 Enhanced Keyboard
- 1024x768 .28 DOT Pitch 14" Color Monitor (Add \$65 for non-interlaced)
- 1MB Trident SVGA Card
- Choice of Mini-Tower, Medium-Tower, Full-Tower, or Desktop (All with 285 Watt Power Supply)

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See video upgrade options opposite page

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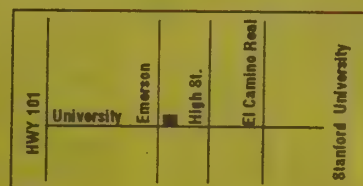
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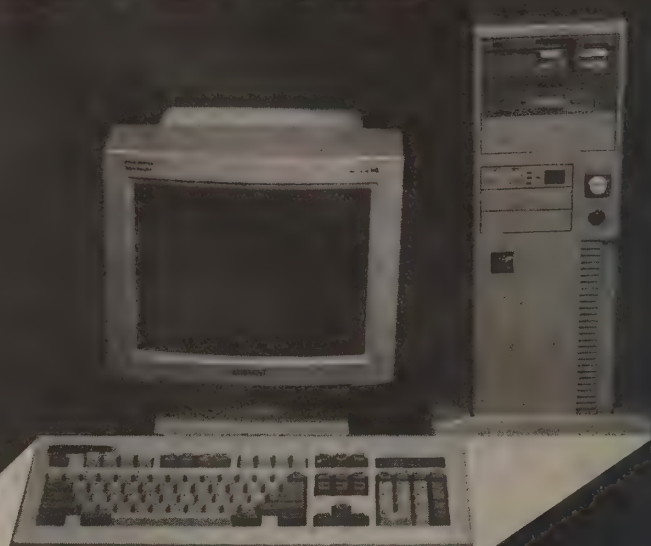
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\$999

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1MB Memory
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NEC 3FGX / 4FG	449.795
Viewsonic 4678	

\$135 385 1185 1745

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Oak 512K SVGA Card	\$48
Trident 1MB SVGA Card	79
Tseng Lab 1MB SVGA Card	99
16 Bits SVGA (1MB) Orchid Pro IIS	
SIERA, Fahrenheit	BEST PRICE
SONY HG1304	565

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486-33C EISA	1139	1339	1609	1759	1799	1889	1949	2149
486-50/256K	—	—	Best	Best	Best	Best	Best	Best
486-33C	599	779	1049	1119	1239	1329	1389	1589
486-25C	549	729	999	1149	1189	1279	1339	1539
486SX-25	399	579	849	999	1039	1129	1189	1389
386-40/64K	359	539	809	959	999	1089	1149	1349
386-33/64K	349	529	799	949	989	1079	1139	1339
386-25/64K	319	499	769	919	959	1049	1109	1309
386-25	269	449	719	869	909	999	1059	1259
386SX-25	184	364	635	784	824	914	974	1174
386SX-20	174	354	625	774	814	904	964	1164
386SX-16	144	324	595	744	784	874	934	1134
286-16	75	255	526	676	716	806	866	1066

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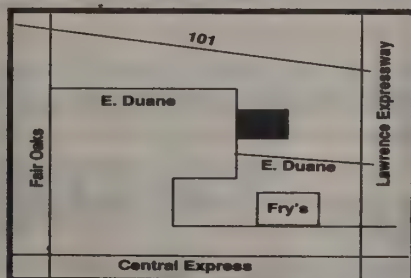
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PRODUCT SPOTLIGHT

Continued from page 182

WORLD FACT BOOK CD-ROM & US HISTORY ON CD-ROM

Published By: Bureau of Electronic Publishing

List Price: \$99.00, \$395.00

Reviewed By: Matthew Leeds

There is a category of product available in CD-ROM form that is known as shovelware. It is data quickly repackaged as a CD-ROM with little thought to adding value to the data via its new delivery vehicle. These two products fall into this category. They offer a lot of information, a search engine to access that information, and little else.

The World Fact Book CD is referred to as the Multimedia CIA World Fact Book. It contains information from a nonclassified database produced by the CIA. The multimedia aspect comes from the inclusion of ten seconds of the national anthem of 141 countries and digitized maps and flags. The maps are of poor quality, and of little use in most cases. The search software is primitive and does not allow for Boolean searches. The information is about what you would find in a basic almanac.

The US History disc contains information from 107 books and articles on US history. It also includes over one thousand images, tables, maps, and photos. It uses the same search software as the World Fact Book. There is a lot of interesting information on this disc, including some that could have been useful in CD-ROM format with a better search engine. As it stands, this product is overpriced.

These discs are sometimes bundled as part of a package that is included with the purchase of a CD-ROM drive. That's about the only way I would suggest you acquire them. (Bureau of Electronic Publishing, Inc., 141 New Rd., Parsippany, NJ 07054)

MAXIMA 2.0 & MODE32

Published By: Connectix

List Price: Maxima, \$169, MODE32 is currently distributed free by Apple Computer

Reviewed By: Matthew Leeds

The release of System 7 brought several new features to the Macintosh environment. One of the more confusing is 32-bit addressing and its attendant benefits. Complicating matters is the fact that some Macs have "dirty" ROMs (not 32-bit clean) and cannot take advantage of 32-bit addressing.

Thirty-two-bit addressing allows direct access to an expanded pool of memory, both real and virtual. While 24-bit mode provides access to 8MB of physical RAM and 13MB of virtual memory, 32-bit mode provides access to 128MB of physical RAM and 1GB of virtual memory. To take advantage of it you must use

only applications and INITs that are 32-bit clean, and you must be using a Mac with 32-bit clean ROMs (IIfx, IIsi, IIfx, LC). The SE/30, II, IIfx, and IIfx have ROMs that are not 32-bit clean. MODE32 creates a 32-bit addressing mode on those machines under System 7 and enables the 32-bit addressing portion of the standard System Memory Control Panel.

Since it only takes a single incompatible application for INIT to crash your system when in 32-bit mode, and developers will need time to update their applications (some shareware may never be updated), some users may decide to forgo running in 32-bit mode but still want access to more memory than 8MB. For these users, Connectix has upgraded their MAXIMA utility for System 7 compatibility.

MAXIMA is a RAM disk and memory extension INIT that can be used in either System 6 or System 7 environments. In either system, it extends the addressable RAM to as much as 14MB, and uses the remaining physical RAM to create a RAM disk. In addition, the new version can create a 32-bit compatible RAM disk in 32-bit mode, and provide it with full memory protection. MAXIMA's RAM disk is easy to use and can be configured to preserve itself through shutdowns by automatically maintaining a copy of its contents on a hard drive and reloading at startup. It can also be set up as the boot drive. Both of these utilities are simple to use, well documented, and Connectix's technical support is second to none; these are recommended products. (Connectix, Inc., 2655 Campus Dr., San Mateo, CA 94403. 415/571-5100. For more information on MODE32, Call: Apple Customer Assistance, 1-800-776-2333)

PC HARDWARE

CMS AMF-ATW DUAL FLOPPY DISK DRIVE

Manufactured By: CMS Enhancements

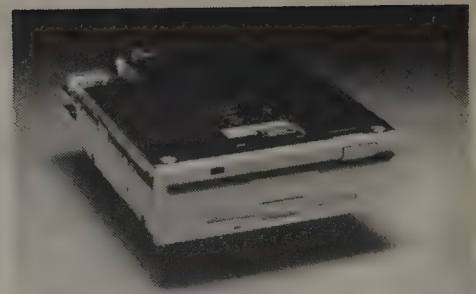
List Price: \$299

Reviewed By: Woody Liswood

The case of your PC was already full, but you needed to get an internal CD-ROM drive to go along with the internal hard drive, two floppy drives (1.2MB and 1.44MB), and tape drive.

If you are cramped for drive bay space, you should get the CMS AMF-ATW Dual Floppy Drive, today! Don't even think about it. In one half-height space you get a 5.25" 1.2MB floppy and a 3.5" 1.44MB floppy drive.

Installation is as easy as opening your case, unhooking the current drives and installing the CMS AMF-ATW Dual Floppy unit. And, you will even save some leftover cable space as well; the unit is designed to be used with only one power connector.



Lastly, if you want to boot from the 1.2MB drive, you hook up the end connector from the cable you already have installed. If you want to boot from the 1.44MB drive, you hook the unit up to the middle connector from that same cable. Now, it is *really* easy to change the boot drive around if you get something on 1.44MB disks and other things on 1.2MB disks. But, remember to change your BIOS to let it know what is where.

What can you say about something like this? It works. You probably need it. Get it. It definitely will solve case cram and allow you to cram even more into the box. (CMS Enhancements, Inc., 2722 Michelson Dr., Irvine, CA 92715. 714/222-6000)

BOOKS

THE MACINTOSH FONT BOOK, SECOND EDITION

Written By: Erfert Fenton

Published By: Peachpit Press

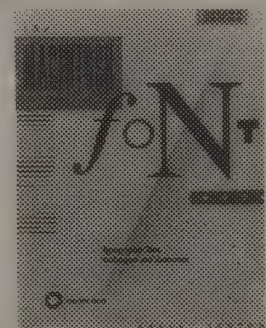
List Price: \$23.95

Reviewed By: Matthew Leeds

Working with fonts on the Macintosh is a little like those Oriental puzzle boxes. Each time you think you've figured out how to open it, you find another box inside. Understanding the differences between screen fonts, printer fonts, Type 1 fonts, TrueType fonts, and the whole associated rigmarole can almost drive one back to the typewriter. Erfert Fenton serves up a seven-course meal of information on fonts, from basic typographical

terms to Adobe's latest technological wonder of Multiple Master fonts. She touches on most of the issues a neophyte desktop publisher will deal with regarding type.

I particularly enjoyed the sections on font installation and font management. Working with a service bureau to resolve font ID conflicts will reveal Ms. Fenton's wisdom. In addition, the sections that detail font utilities, desk accessories, and applications are invaluable. The inclusion of type samples, vendor guides, font name cross-indexes, and service bureau listings also to make the *Macintosh Font Book* a lasting resource. (Peachpit Press, 2414 Sixth St., Berkeley, CA 94710. 1-800-283-9444, 510/548-4393)



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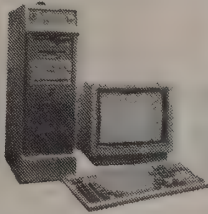
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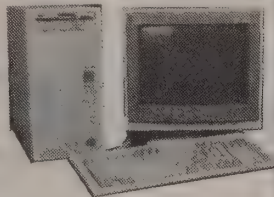
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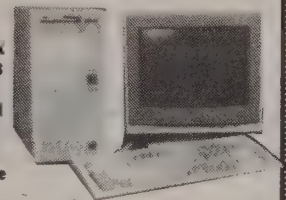
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- *Logitech Dextra Mouse w/Rainbow Paint
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- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0



Complete System \$ 1469

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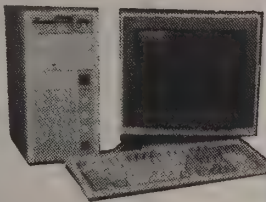
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386-25MHz SVGA 80MB HD

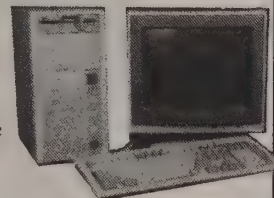
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- *2MB DRAM (up to 8MB)
- *80MB 19ms IDE Hard Disk
- *SVGA 1024x768 0.28mm Dot Pitch Color Monitor
- *Super VGA 1024x768 Graphic Card w/512KB
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dextra Mouse w/Rainbow Paint
- *2 serial, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0



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386SX-25MHz w/32K Cache SVGA 40MB HD

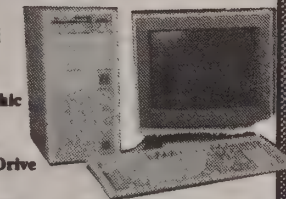
- *AMD 386SX-25MHz
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- *32KB Cache Memory (up to 64KB)
- *40MB 23ms IDE Hard Disk
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- *Super VGA 1024x768 Graphic Card w/512KB
- *TEAC 1.2MB Floppy Drive
- *SONY 1.44MB Floppy Drive
- *101 Enhanced Keyboard
- *Logitech Dextra Mouse w/Rainbow Paint
- *2 serial, 1 parallel & 1 game port
- *Mini Tower Case w/285 Watts Power Supply
- *Microsoft DOS 5.0



Complete System \$1149

386SX-25MHz SVGA 40MB HD

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- *Super VGA 1024x768 Graphic Card w/512KB
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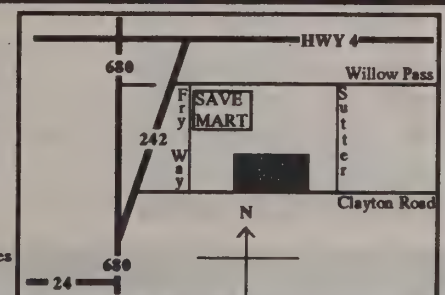
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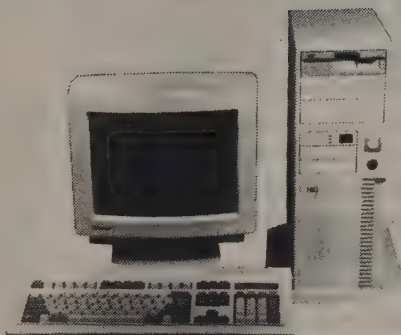
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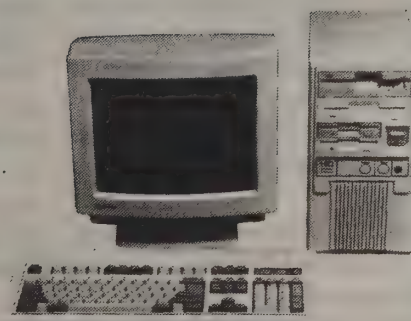
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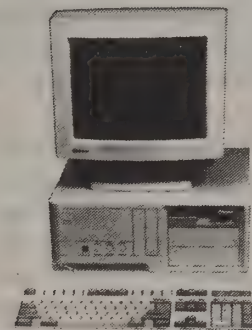
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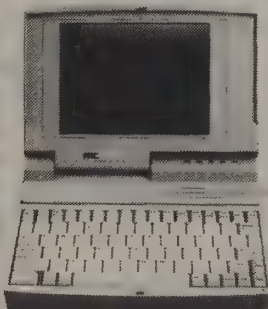
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ended a contract giving British Telecom's Dialcom online service exclusive access to the FDA's database of health-related reports and advisories.

In its place, the FDA set up its own BBS to provide the same information for free—it even has a toll-free number. Bill Haag, a systems programmer for the administration, says Dialcom was simply charging users too much—especially since it was getting the FDA data at no charge.

Other agencies, from the Federal Reserve Bank of Boston to the Federal Communications Commission, now also run electronic data systems available to the public.

The federal court system is quickly moving to allow public dial-up access to its records and opinions, so far at no charge. The Ninth Circuit Appellate Court in San Francisco has had such access since 1989. Bankruptcy and district courts in a number of states now operate similar systems, while a number of the courts have voice systems that work with touch-tone phones.

Some in Congress say the trend will only continue, as the costs of computer data systems continue to plummet. For many agencies, the costs of hardware will be almost nil—if their databases are relatively small, they can use the aging, but still useful IBM XT's that are increasingly cluttering up government storerooms. A subcommittee of the House Committee on Government Operations recently set up a BBS for whistleblowers to report potential fraud and waste—using an abandoned XT and free software. The only cost was about \$90 for a modem.

PRIVATE VENDORS, PUBLIC INFORMATION

However, other federal agencies continue to give private vendors exclusive access to their information.

For \$35, you can buy a CD-ROM version of the Commerce Department's National Trade Database, which contains information from more than one hundred thousand government documents related to international trade. But if you don't have a CD-ROM player, you'll have to pay McGraw Hill's Data Resources Inc. \$80 an hour and 54 cents a record to search the information through its online service, writes Holly Knauss in *Multi-national Monitor*, a Washington-based magazine.

Still, fights between such groups as the Information Industry Association and the American Library Association over public access have generally eased in recent years, with consensus on a two-track approach to government data: agencies should make their information available to the public at no more than marginal cost, while private vendors should be free to repackage or enhance this data and try to sell it for whatever the market can bear.

But just as they are coming to this general agreement, the government itself has begun

looking at making money from its information.

Federal information has never been copyrighted. Although government agencies can, and have, charged for access to the information they collect, there has never been any restrictions on its use—anybody could take the information and do whatever they wanted to with it.

Last year, however, a congressional committee proposed a royalty system for access to a federal database of marine tariffs as a way to make up money lost by its proposal to eliminate a new tax on luxury boats. Not only would anybody who wanted access to this information have to pay for it, but if they then resold the information, they would have to pay a royalty to the government for each copy they sold.

"It would be a horrible precedent," Gary Bass, executive director of OMB Watch, says. "It raises the specter of a copyright," under which the government could try to profit from information it has. "That's incredible. Where does that end? What about things like a federal register [which lists proposed rules changes]?"

"It really violates the tenets of democracy, of open access and sunshine and informing the public," he says. It raises the possibility of government censorship, for copyright owners can choose who can use their information—what if the government did not like what a newspaper was writing about the way it runs the military or writes a budget?

"If something like this occurred it would be not just a precedent, it would be very powerful in setting a negative tone for the future of democracy," he says.

The proposal is in limbo now, but Bass worries that it will resurface. "It's easier to do this on information because there's no constituency on information," he says.

PRIVACY ISSUES

There are problems on the local and state level as well.

A controversy erupted in Colorado Springs last year when the mayor acknowledged he had been reading printouts of email messages among city council members on a public BBS the city had started (separate from the Pikes Peak system)—a violation of the ECPA.

In Massachusetts, Gov. William Weld recently proposed creation of an online system to give marketers—and anybody else with the money—access to the state's database of driver's license records, which under state law are already public record. But he withdrew the proposal the next day because of protests this would give marketers and their computers access to everybody's social security numbers—which virtually everybody in the state uses as their driver's license number.

"California is a mess," Dowlin says. Gov. Pete Wilson recently privatized the printing of the state code, which means that even

public libraries now have to pay for updated information about state law.

STANDARDS

Another problem is the lack of standardization. Anne Heanue of the American Library Association says this is a growing problem for the nation's fourteen hundred federal repository libraries—public and private libraries that agree to stock government publications. As more government information comes out on CD-ROM disks, librarians are having to spend more time learning different formats and searching systems to respond to patron requests.

A prime example of this, critics say, is the Environmental Protection Agency's Toxic Release Inventory, a Congressionally mandated database that lists the chemicals released into the environment by the nation's industrial plants.

Bass says the search system set up by the National Library of Medicine—which was given authority over the inventory—is so complex and, at roughly \$40 an hour, expensive, that his group reached an agreement with the EPA to set up its own free database that even a novice can use.

The library association, meanwhile, supports a bill that would bring standardization to the system, in part by making the General Printing Office the central online source for government data. Instead of trying to figure out all sorts of online systems, a user could dial up a single service and download the report they need. But although the GPO is now involved in a pilot project for such an approach, critics charge the agency does not really want to get into the online business—and that it has never really done a good job at disseminating printed material to begin with. ■

SOME BOARDS TO TRY

The Food and Drug Administration's Electronic BBS, 800-222-0185 (2400 baud, 7-1-E), provides FDA decisions, advisories, and press releases, as well as copies of congressional testimony by FDA officials, all searchable by keyword. When your modem connects, hit enter, and at the "login:" prompt, type "bbs" (lower case) and hit enter. After you register, to get a copy of the system manual, type "manual," hit enter, type "scan" and enter. Turn on your computer's screen-capture or logging system and then type a 1 and hit enter. To capture the entire document without having it pause every twenty-four lines, type the word "page" and hit enter before you type "scan."

OMB Watch, Washington, DC, runs RTKnet (for "Right to Know") which offers simplified database searches of the Environmental Protection Agency's Toxic Release Inventory pollution data and conferences on issues related to federal information. To apply for a free account, call (202)234-8494 (voice).

US Census data is available through CompuServe, by typing GO CENDATA. There is no surcharge for accessing this data, but regular CompuServe rates do apply.

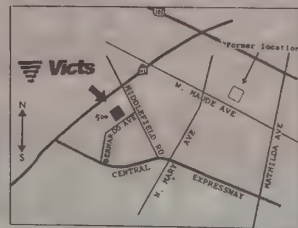
The US Court of Appeals, Ninth Circuit in San Francisco offers free online access to its decisions and rules through its ACES system. The dial-in numbers are (415)556-8648 and 556-8620. At the "login:" prompt, type "bbs" (lower case).



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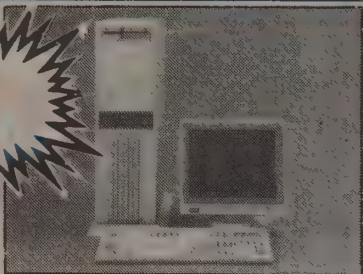
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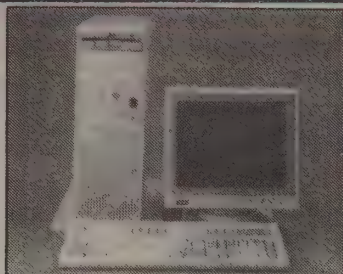
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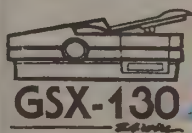
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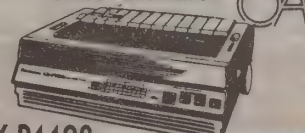
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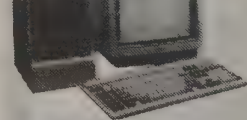
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- Clock/calendar w/battery backup
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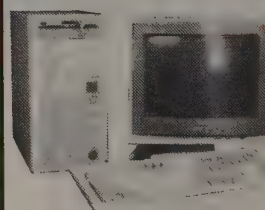
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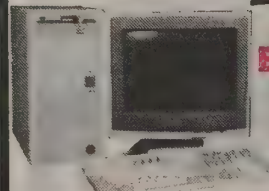


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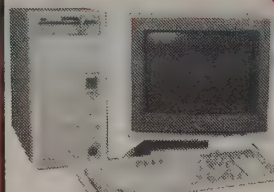
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- 2 Serial, 1 Parallel, 1 Game Ports
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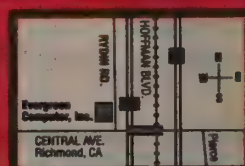
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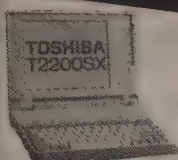


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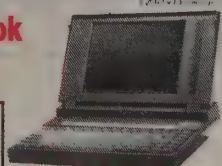


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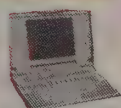


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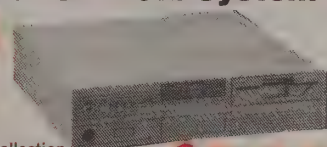
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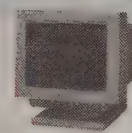
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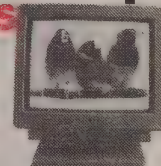
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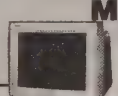
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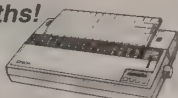
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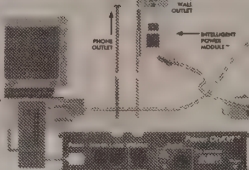
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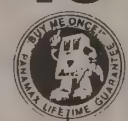
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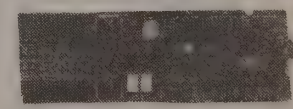
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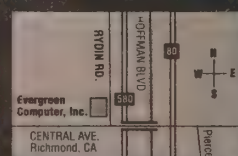


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OTHER USES FOR ELANA

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Elana 1.1B is shareware available from Andrew Rowe, PO Box 563, Belconnen ACT 2616, Australia. The registration fee is \$25 US (add \$5 for an airmail response). Andrew can also be reached through Fidonet at the PCUG BBS in Australia, FIDONET 3:620/343. Elana is also available for evaluation on most US bulletin board systems dedicated to Windows and Windows utilities. Registration entitles the user to the most current version of Elana with printed documentation. ■

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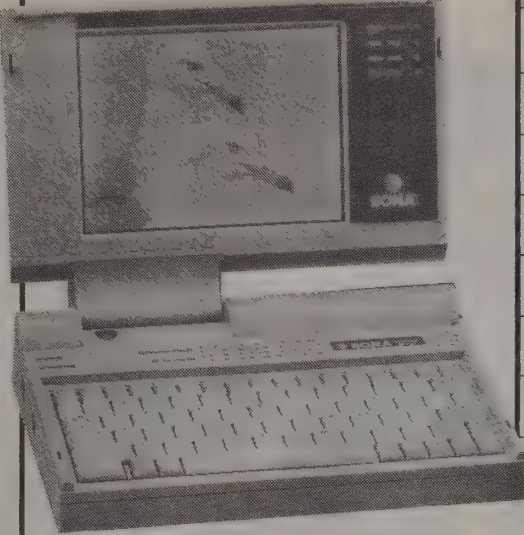
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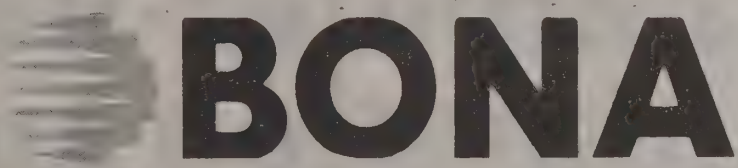
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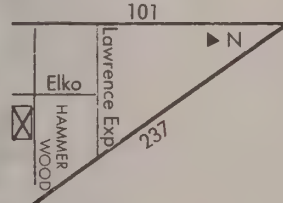


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Though modeled on a composite of the children of many Pixar employees, the Baby From Hell in 1988's *Tin Toy* represented modeling and animation that were still recognizably computer-generated. More lifelike textures and movement are an ongoing quest at Pixar.



Computer-Based Animation And Special Effects

Pixar's State-Of-The-Art Tools Are Getting Better All The Time

BY RICHARD GREENFIELD

Terminator 2 offered a spectacular demonstration of how effectively computer graphics and animation can be used for special effects, from nuclear holocaust to a liquid metal cyborg. *T2* is, of course, a big-budget Hollywood production, but efforts are under way to provide relatively low-cost tools to allow independent movie and video producers with cash constraints to achieve comparable results.

Pixar, located in Point Richmond, is at the forefront of such efforts. Its Renderman software was used by George Lucas's Industrial Light and Magic to create the cyborg in *T2*, and, as PCs and workstations become more powerful, the Renderman is becoming available on numerous platforms, including Mac and NeXT (Photorealistic Renderman is incorporated into the NeXTstep 3.0 operating system, due in the spring.).

Pixar recently scored a major coup by contracting with Disney to

produce the first full-length computer animation film, culminating a long-standing but largely unpublicized working relationship. The company's operations currently include both active production and software development.

Ed Catmull, president of Pixar, notes that the new computer-generated special effects, which work very well in areas like motion blur, are becoming widely accepted, and that the company is continually adding new capabilities which, says Catmull, "do not supplant but add to the bag of tricks."

THE STATE OF THE ART

Naturally, Pixar is very concerned with adding to the animator's bag of tricks. Renderman can be used across platforms, moving files generated on Macs and PCs to higher-end workstations by way of RIB

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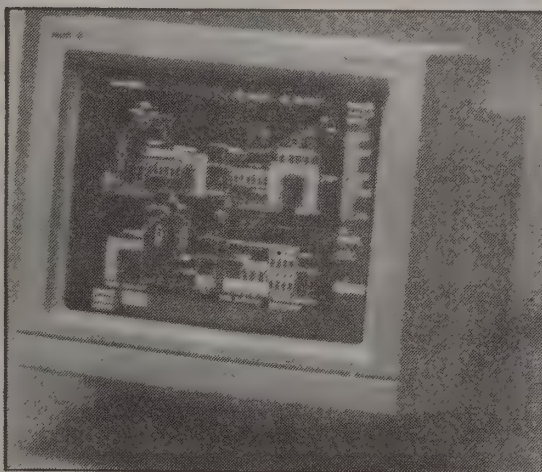
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files (Renderman Interface Bytestream). The company makes no secret of its ambition to make Renderman an industry standard for image modeling in much the same way that PostScript has become the standard for print and typefaces.

But, perhaps because it's also a production-driven company, Pixar is also sensitive to the needs of professionals working in the fields of animation and special effects. And its ability to address these needs has improved as the software took advantage of more powerful hardware platforms.

John Lassiter, who will be directing the Pixar/Disney film, recalls the making of the short film *Red's Dream* in 1987. The bike shop image in the film took eight or nine hours just to compute, and there was no ability to do simulated camera movement. Motion was simulated by having a neon sign outside flash on and off.

Now, Lassiter says, camera move capability is there. "In ten years, ILM will *still* have a model shop and a creature shop and a hand-to-hand shop, but they will also have a computer animation shop. And the tools will be better and faster, and will produce more natural-looking effects than what we have now."

Getting the natural look is the mandate of VALIS, a Pixar spinoff that shares its headquarters. VALIS markets shaders to give texture to the surfaces produced with Renderman—e.g. "Wood," which might be broken down into "Cedar" or "Pine," "Stained" or "Natural."

Says Bill Kolomyjec, senior partner at VALIS: "The trend will be away from sterile rendering and effects to more natural looks." And, just as VALIS specializes in object shading, another developer might choose to specialize in movement of two-legged animals or four-legged animals. (The day I visited Pixar and VALIS, a visitor from the



The bike shop in 1987's *Red's Dream* took many hours to generate but set a standard for the time in realistic computer-generated images.

MIT AI Lab was showing videos taken of their one-, two-, and four-legged robots; the robot videos were then animated together with videos of similarly bodied animals for comparison.)

While it's much too early to assess *T2*'s long-term effect on the animation and special effects communities, it's apparent that it's a powerful force for encouraging the computer community to push the boundaries of achievable effects even further. It's also apparent that Pixar will be providing some of the best tools for producing these effects. (Pixar, 510/236-4000) ■



The liquid metal cyborg in *Terminator 2* was created by Industrial Light and Magic using Pixar's Renderman software.

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486-33C EISA	\$1,128	\$1,328	\$1,604	\$1,754	\$1,794	\$1,884	\$1,924	\$2,144
486-50/64C	1,198	1,398	1,674	1,824	1,864	1,954	2,014	2,214
486-33C	578	738	1,014	1,164	1,204	1,294	1,354	1,554
486-25C	528	688	964	1,114	1,154	1,244	1,304	1,504
486SX-20C	388	568	844	994	1,034	1,124	1,184	1,384
386-40/64C	338	508	784	934	974	1,064	1,124	1,324
386-33/64C	318	488	764	914	954	1,044	1,104	1,304
386-33	308	478	754	904	944	1,034	1,094	1,294
386-25/64C	298	468	744	894	934	1,024	1,084	1,284
386-25	268	428	704	848	878	968	1,038	1,238
386SX-25	188	352	628	778	818	908	968	1,168
386SX-20	178	348	624	774	814	904	964	1,164
386SX-16	148	322	598	748	788	878	938	1,138
286-20	98	292	568	718	758	848	908	1,108
286-16	78	262	538	688	728	818	878	1,078
286-12	68	248	524	674	714	804	864	1,064

BASIC SYSTEM CONFIGURATION:

Motherboard & CPU, 1MB (512KB for 286 systems) memory installed, 1:1 2HD/2FD controller, 1.2MB or 1.44MB Floppy Drive, Internal Clock/Calendar, Mathematical Coprocessor Socket, Enhance Case with Power Supply, and 101-Key Enhanced Keyboard.

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130mb/15ms (IDE)	348
200mb/16ms (IDE)	548
200mb/16ms (SCSI)	598
240mb/15ms (IDE)	578
340mb/15ms (SCSI or IDE)	998
676mb/16ms (SCSI or ESDI)	1,348

PRINTERS

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Citizen GSX-130 (24-Pin)	258
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Panasonic KX-P1180	154
Panasonic KX-P1123	198
Panasonic KX-P1124i	284
Panasonic KX-P1624	358
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Video 7 1024i w/ 512KB	166
Video 7 VRAM II w/ 1MB	338
Diamond Speed Star Plus w/ 1MB	144
Diamond Speed Star w/ Hi-Color	168
Orchid IIs/Fahrenheit 1280 w/ 1MB	Best
Orchid Prodesigner IIs w/ Hi-Color	Best
Orchid IIs w/1MB	Best
Nanao 9070U (16", 1024*768, 0.28)	868
Nanao 9080i (16", 1280*1024, 0.28)	1,018
NEC 3FGX (15", 1024*768, 0.28)	628
NEC 4FG (15", 1024*768, 0.28)	798
NEC 4DS (16", 1024*768, 0.28)	978
NEC 5D (20", 1280*1024, 0.31)	1,848
Sony CPD 1304 (14", 1024*768, 0.25)	548
Sony CPD 1604 (17", 1024*768, 0.25)	998
Standard VGA (640*480) Monitor 0.51	198
Super VGA (1024*768) Monitor 0.39	234
Super VGA (1024*768) Monitor 0.28	278
Super VGA (1024*768, 0.28) Non-Int.	338
14" SVGA (1024*768, 0.39) Monitor with 16-Bit SVGA 512K Card	278
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12" Mono Monitor w/MGP Card	88
14" Mono Monitor w/MGP Card	108

HARD / FLOPPY DRIVE ADAPTERS

IDE 2FD/2HD	\$14
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Ultrastor ESDI w/32K Cache (ISA)	168
Adaptec SCSI 1542KB w/Kit (ISA)	274
Ultrastor SCSI 24F / 24C (EISA)	498 / 698
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MATH COPROCESSORS

AMD 80287-10	\$58
Intel 387SX-16	138
Intel 387SX-20	148
Intel 387DX-33/25/20/16	198

MISCELLANEOUS

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Serial Card/Printer Card/Game Card	12
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Internal Modem 2400 Baud	44
Fax Modem (9600 Fax, 2400 Modem)	76
3-Button Mouse	15
Logitech Mouseman Serial (400 dpi)	66
Logitech Mouseman Bus (400 dpi)	73
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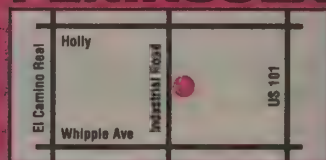
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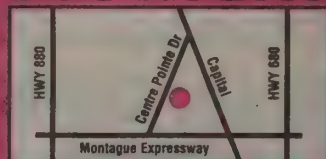
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QuickTime Takes Off

Apple Technology Enables Great, Affordable Interactive Multimedia

BY TONY
REVEAUX

With the launching of Apple's new Macintosh software architecture for photos, sound, video, and animation, multimedia is now really clicking along in synch with QuickTime. Apple's term "dynamic data" is an apt description; currently, the average desktop Mac can support any kind of information expression without special boards or massive storage capacities.

QuickTime may or may not change the way we learn, buy, and sell, but it certainly has given a jumpstart to computer-aided multimedia. At the recent Macworld Expo in San Francisco, over one hundred vendors showed products and services dedicated to, or at least compatible with, QuickTime. Since then, hardly a developer or manufacturer with an ounce of Macness hasn't announced or promised deep QuickTime relevancy.

QuickTime will expand the base of low-end color systems, add wings to HyperCard, and strengthen cross-platform multimedia capabilities. QuickTime will also strain the response limits of many CD-ROM players, and the file size of QuickTime documents will impede floppy- and network-based distribution.

Unlike the Apple II line, the installed base of Macs has historically been a monochrome majority. This has been changing, especially in the last year. The Macintosh LC and lower-cost color monitors like those from Mirror and NEC, as well as Apple's 12" and new 16" displays, has made color an easier option for new users and upgraders. This expanding base is also helping to make the Mac a more reasonable choice for education—barely in time to carry on the cause from the fading Apple II. QuickTime, along with HyperCard and MacroMind Director, can make the Mac an incredibly effective platform for interactive learning.

QUICK PIX

As an example of QuickTime's impact on computer-based communication, take a look at what's coming up for Brøderbund's Kid Pix. That's the runaway hit for both children and the adults who actually buy most of the software.

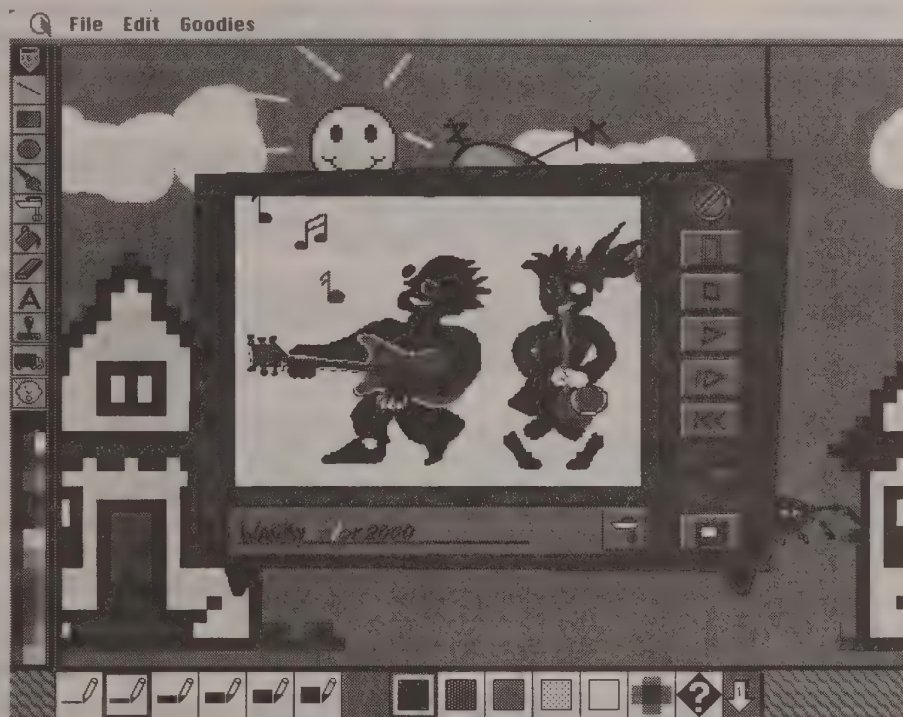
Kid Pix is a draw/paint/twist/shout program that stimulates creativity at all age levels. It's about to be joined by Kid Pix Companion, a QT-era expansion. I was shown a beta development version at Macworld, and even at that stage, it is an intriguing harbinger of personal computing in the '90s.

Companion sits on top of Kid Pix, where it provides QuickTime compatibility and serves as an editing and organizational toolkit for text, graphics, and sounds created in the original program. You can choose and save elements and sequences in Companion—and add

QuickTime Movies—and see them arrayed as thumbnails in a storyboard format. There, you can click and drag them to different positions and save the sequences as Movies.

To create video movies, you'll need a video capture board, but you can make Movies of "slides" and animations from Kid Pix. There is already a growing number of motion clips from many sources, such as the BMUG TV-ROM, which has over one hundred PICT files and nearly four hundred MooV (QuickTime movie format) files with the same kind of variety—people, places, things, and novelties—as many graphic clip art collections. The BMUG TV-ROM also includes Popcorn—an enhanced QuickTime extension and player which can be used as an editor utility.

Digital video on a standard Mac changes the rules on what is



Wacky TV, in the forthcoming Kid Pix Companion, plays animations and QuickTime video.

QuickTime will expand the base of low-end color systems, add wings to HyperCard, and strengthen cross-platform multimedia capabilities. QuickTime will also strain the response limits of many CD-ROM players, and the file size of QuickTime documents will impede floppy- and network-based distribution.

CREATIVE TOOLS

RESOURCES

The QuickTime Starter Kit, \$200 (available March)

QuickTime Movie

Exchange Toolkit
(for developers), **\$79**
(available early 1992)

Apple Computer, Inc.
2025 Mariani Ave.
Cupertino, CA 95014
(408)996-1010

Kid Pix Companion

\$39.50 (available "soon")

Braderbund Software
500 Redwood Blvd.
Novato, CA 94948-6121
(415)382-4400

BMUG TV-ROM

(CD-ROM), \$50

BMUG, Inc.
1442A Walnut St.
Berkeley, CA 94709
(510)549-BMUG

possible. I hate to say it, but for the price of a couple of business lunches, Kid Pix Companion might eat the lunches of several low/mid-range presentation packages with more elevated tabs.

HYPERCARD GOES HOLLYWOOD

Claris's venerable HyperCard will soon be available in its new version 2.1. Along with many expected evolutionary additions and refinements, v2.1 will also support QuickTime. While it may not yet possess the color interface of Aldus' SuperCard, it will be able to bring up color in the window. External commands (XCMDs) can be configured from v2.1's QuickTime Tools.

You will be able to integrate digitized video, sound, photos, and animation so that they can respond to the same clicks as do other playback functions of HyperCard. This means that you can call up a named Movie to fill a window, play it in its entirety, go to specific frames, stop and start, or play preset loops. But the interactivity doesn't end at the window frame. You can place visible or invisible buttons over any x/y coordinate in any frame or series of frames of a Movie. The functional opportunities here are endless.

MEMORY BLOCKS

The CD-ROM is the favored delivery medium for QuickTime Movies, and, as CD-ROM drives are manufactured in greater quantities they will continue to drop in price.

But you should be aware that not all drives are fully compatible with QuickTime. While most recent models are fast enough to tapdance with the data rate of QuickTime, not all of the players out there can



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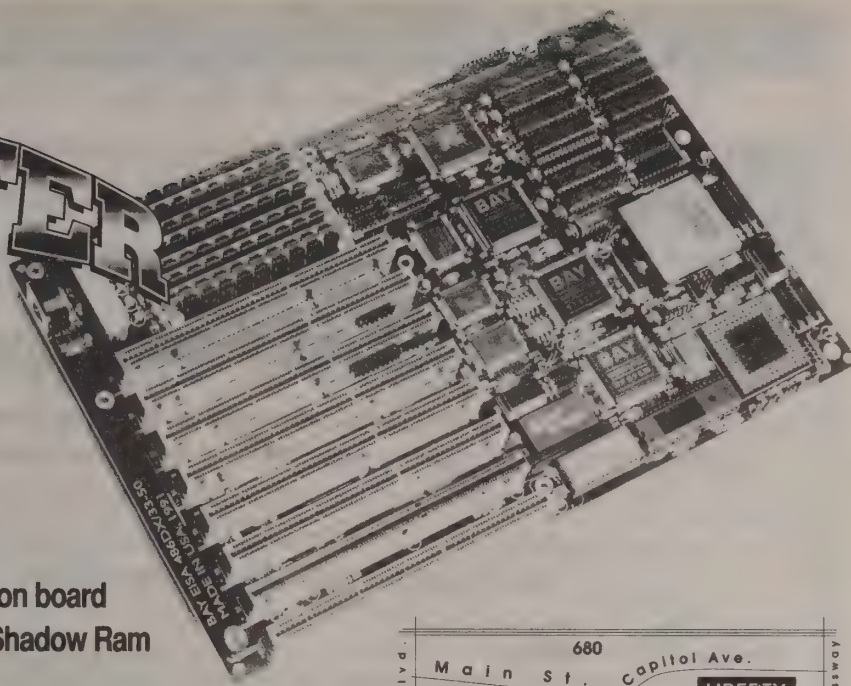
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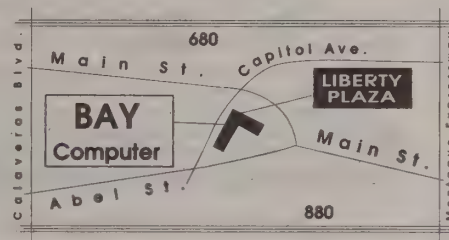
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keep up. The best way to determine compatibility before you buy (many salespeople just aren't really sure) is to get access to a copy of Apple's Golden Master CD-ROM. Try an Apple product dealer or a user group. Fire it up on the drive you're auditioning, bring up the "Evaluate CD for Movies" section, and follow through on its suggested test sequence.

QuickTime is a miracle of software compression/decompression, but its very immediate accessibility will lead to some frustrations. If you're using digitized video in multimedia for more effective communications, you want to be able to get it from one viewer to another in order to communicate. For the average user, swapping floppies is the standard way to transport data. A minute or two of QuickTime can mean big time in megabytes. Before you know it, you've topped 5MB.

While you can further compress a QuickTime file to be unstuffed at the destination Mac, there are limits to that, and many users will want to be able to fly, plug, and play. Still, QuickTime is an improvement over the 30-40MB files hauled on Syquest cartridges or Flopticals that digitized video has meant up to now.

According to some industry experts I asked, you'd better not hold your breath for greater compression efficiency in future versions of QuickTime. Instead, you should "enhance your system's storage capabilities." That's right; they're not going to lower the river—you're going to have to raise the bridge.

CROSS-PLATFORM QUICKTIME

One of the most enduring benefits of QuickTime will be its cross-platform transparency at the code level. The QuickTime Movie Exchange Toolkit has utilities and sample code that will allow developers to incorporate the Movie format into non-Macintosh applications such as MS-DOS, Cray, Silicon Graphics, Sun, DEC, and IBM.

Apple has announced that it is working with Corel Systems Corp. They are the manufacturers of CorelDRAW, one of the most widely used graphics programs in the MS-DOS sphere. Corel is developing file format translators to be shipped as part of a Macintosh utility in the QuickTime Starter Kit, a product for those who want to explore the capabilities of QuickTime. This Starter Kit will include the QuickTime extension, a CD-ROM sampler of Movies and demos, and QuickTime utilities. The Corel translators will allow for the conversion of many MS-DOS and Windows files to be played as QuickTime Movies. ■

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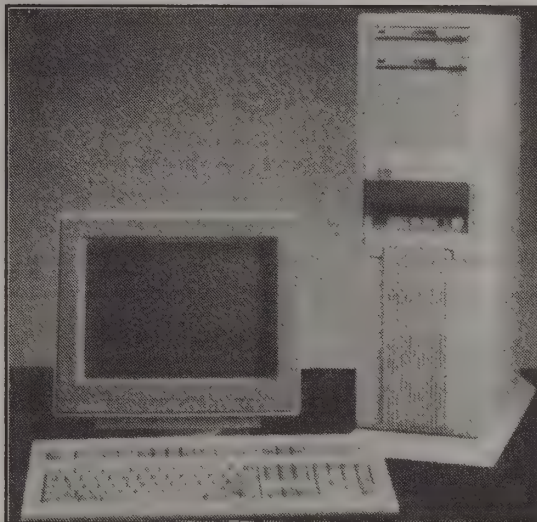
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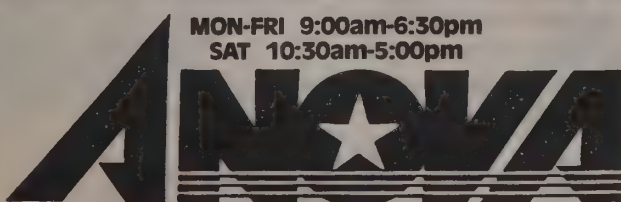
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Another Year, Another Expo

BY DAVID
MORGENSTERN

As I watched the Super Bowl last month, I remembered the wild advertisement that introduced the Macintosh to the world eight years ago. In the third quarter, a woman athlete ran from grim-faced thought police and tossed a hammer into a giant video screen filled with Big Brother's face, thereby saving the world from becoming a totalitarian state.

It's strange how Steve Jobs' predictions for the computer industry have been paralleled in the real world. Communism went into Chapter 11 bankruptcy, and totalitarian command-line operating systems surrendered to the democratic graphic user interfaces.

True Macintosh believers smuggled their computers over the border, in through the corporate back doors. What was obvious productivity to us was heretical revolution to others. Only the shock of the IBM and Apple agreement has knocked some die-hard stubborn information managers out of the DOS ages. It's never too late to get some BMUG spirit!

BMUG

MAC THE WORLD GO ROUND

Is it a particularly American characteristic to require the latest computer show to be the absolute end of the universe? Or is it a BMUG characteristic? Perhaps it's a universal primal need that causes people to want every Macworld Expo to be the earthshaking cosmic silicon satori. We can't always get what we want—but what we got ain't bad!

Everyone that crossed my path on the San Francisco Macworld Expo floor said, "It's nice, but everything is evolutionary." They saw the show as a stream of updates and pleasant, run-of-the-mill products. No product caught them by the throat, knocking their breath out with some glorious vision of the future. Maybe we're all a couple of rungs up the digital ladder, and not as easily impressed.

Let's face it, the first Macworld featured the Macintosh—Period. And that was enough for most people. The only other product introduction that moved even the most I've-seen-

it-all BMUGers off their duffs was HyperCard. A news spreadsheet will not set the heart racing.

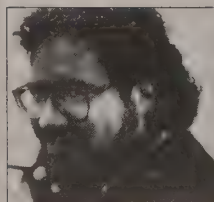
Frontier 1.0 by UserLand was on the lips of the BMUG power crowd. It's the first program that lets users write scripts that can call AppleEvents, the inter-application communication software built into System 7. The scripts can be simple repetitive tasks performed on files, giving Mac users the "Batch" capabilities that MS-DOS users have enjoyed for years. But they can also be involved processes, encompassing many applications on a network.

It's much more than the macro programs that record keystrokes, mouse movements, and clicks. People can combine software they already own to create custom integrated programs that toss data back and forth, without users having to be responsible for every cut and paste. I overheard some Apple engineers ragging it, claiming it's too complex and requires programmers to remember too many command verbs. But Frontier is out the door and on the shelves, while AppleScript is scheduled for release sometime this year—maybe.

QuickTime, the new multimedia system software, was found in almost every other booth. Not everyone has, or understands, the need for their spreadsheet to display movie files, but there were some educational uses of the technology that made sense even to the squarest user.

The Voyager Company was showing a few beta products that will be available in the next couple of months. *Poetry in Motion* fea-

QuickTime, Brain Waves, And Marble Macs



Copyright © 1992 by David Morgenstern. All rights reserved. David Morgenstern believes that computers and BMUG can cultivate a positive change in the world. He volunteers time at BMUG, when he's not working his "regular job," writing, or prowling around the BMUG Bulletin Board. He can be reached through the BMUG office, AOL: daviD eM, CIS: 72030,1607, and Internet: davidm@sfsuvox1.sfsu.edu.

UPCOMING EVENTS:

- February 6** Microseeds HAM, Greenidea Greenscreen, Apple QuickTime.
- February 13** Lotus 1-2-3 Mac, Dantz Development DiskFit Pro.
- February 20** ChipSoft MacInTax '91, Adobe Premiere.
- February 24** BMUG West at Exploratorium museum in San Francisco. Software Publishers of America Super Bulk Mailer+, Concentrix Technologies Connections (PIM).
- February 27** Fred Davis on the Future of Apple, Niles & Associates EndNote Plus.

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tured QuickTime movie performances of a dozen poets, while the viewer reads along on the screen. A few poems had interview clips and biographical information. *You Can't Get There From Here: Ephemeral Films 1946-1960* had articles on social film criticism accompanied by the short films themselves. CD-ROM publications will be the vehicle of choice for information about any performance-based art form.

EXPO TRENDS AND BENDS

The influence of the PowerBook laptops was seen in the overwhelming variety of portable productivity programs, address books, calendars, and to-do lists. People want to be able to carry their data and use it too. There were new entries in the flavors of project management software called Personal Information Managers (PIM). One of the strangest is Workspace by Ark Interface, Inc.

Workspace displays pictures of rooms, with a table, bookshelf, and filing cabinets with drawers. Some of the rooms are realistic, others are domestic versions of Picasso's

Guernica. You put documents in binders, and move them around your virtual office. It's like a HyperCard home stack in hell. Workspace is still in development, and my views might have been influenced by its repeated crashes. A bomb looks incredibly impressive on a 30+ monitor.

The BMUG booth was its usual sardine-can mob. The BMUG tower had a new look this year, since the old cardboard shell sailed off the bridge on the way home last year. The TV-ROM was a tremendous success. There were a half dozen QuickTime CD-ROM collections at the show, but ours was the most fun—and the cheapest!

The third version of the Shareware Disk Catalog was also a big hit. Its 660 pages list all the programs and fonts in the BMUG shareware library, with detailed descriptions, font samples, and pictures. Everything from BMUG, the fantastic rainbow T-shirts, PD-ROM version A, and more, is available from the BMUG office!

Brian Thomas showed 1/22/63 Extra!, the latest addition to his series, HyperCard & History, at the BMUG booth. He's the author of *If Monks Had Macs*, and has formed a company, riverTEXT, to create interesting HyperCard-based software. Extra! is an examination of the assassination of JFK, including a QuickTime movie of the Zapruder film. As the movie runs, the cursor changes into a ruler so the viewer can measure angles and movement. The stacks are now only available from riverTEXT at PO Box 2517, Portland, OR 97208.

THE MARCH OF THE TRILOBYTES

Here's a rundown of the non-Olympic moments on the Expo floor:

- My two favorite products in the show were the kind that most people would pass without a second glance. They were in plain booths, without the flashing lights or beautiful blondes that might draw people in.

The VersaGRIP system by Q-Safety is an impressive set of simple devices to hold your computer, or any other electronic equipment, down on the desktop during an earthquake. The braces are various flavors of molded nylon automobile-industry Velcro fasteners, and are designed to stand up to the constant vibration found in cars and trucks. Some geniuses poo-pooed my enthusiasm and didn't want to be bothered with a couple of \$10 kits that would protect the thousands of dollars invested in their hardware and data. Go figure. Q-Safety can be reached at (818)449-1590.

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the computer industry
have been paralleled
in the real world.
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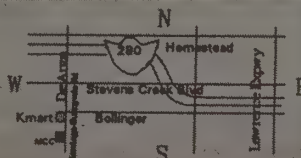
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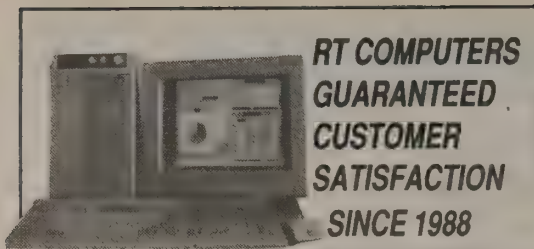
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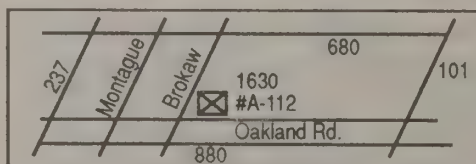
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CREATIVE TOOLS

in scientific data acquisition. One of the unique features about this device (other than the fact that its cost is way below anything else on the market) is that it's an AppleTalk device. You can put any kind of sensor, or combination of sensors, and control and collect data from the network.

The applications for the device are endless. Using PhoneNet connectors and remote software, you could control a house security system from a remote Macintosh. The package comes with a number of prebuilt HyperCard stacks for remote temperature data collection and home security management. The groundwork for this device and software was done for the acoustic reflector panel control system at Davies Symphony Hall.

•The Good Luck award at the Expo goes to the German company Archicomp. They were showing two custom made-to-order cases for computers. The Woody model for a modular Mac was made out of polished elm, with 24 karat gold plated trim. The Olympus

case for a modular Mac was carved out of solid marble, including the mouse and keyboard. How much does a "thrilling contrast to the cold electronic core they conceal" cost? It's like the old joke—if you have to ask, they're not for you. I asked, and they cost \$20,000 and \$40,000 respectively.

I received plenty of blank looks from the craftsman when I asked if he'd tested the cases for heat buildup. Although there are vents and fans in the lavish cases, the difference in materials and thickness might create unforeseen heat sinks or traps. Herb Dang, one of our BMUG engineers, thought that the marble case would conduct heat perfectly, but only if one part of it was submerged in water! Perhaps this is a product for only the highly wealthy and well-insured Macintosh user.

•Video display terminal health and safety were on the minds of some vendors and users. The NoRad Corporation showed an unusual add-on shield against Extremely Low Frequency (ELF) magnetic radiation. The ELF ProTech is a set of panels that fit around the sides and back of the monitor, held in place by little Velcro strips. It effectively cuts the radiation leakage by 70%. Other effective retrofit shielding products need to be installed inside the monitor; while the ProTech looks strange, it's quick and easy for home do-it-yourself installation.

ElectroPlasma has a different solution to the radiation problem—if you think it's a problem. They showed a number of prototype very large-screen (1280 x 1728) plasma displays. Plasma monitors do not put out any radiation and do not flicker. They're expensive and used in the military.

•The strangest thing was only on the floor for one day (so I missed it—rats!). The Interactive Brainwave Analyzer from Psychic Labs Inc. is an expensive program. The BMUGers that saw it disagreed on the cost, some claiming \$500, and others \$5000. It comes with an electrode headset, analyzes brainwaves, and maps them in a 3-D isometric color graph. The colors represent various types of brain activity.

•They showed this at the Verbum Be-In party. Todd Rundgren, the rock musician and Macintosh programmer, was persuaded to try one of these on. He is a practiced meditator, and won a contest for maximizing his blue line. He's definitely a cool dude and has the software to prove it.

•A constant commotion trailed behind the gorgeous body-sculpted young men prowling the show wearing MicroTech "I Got the Power" tanktop t-shirts with spandex shorts. They were plugging the Ultimate Power line of storage devices. I'm certain they are all power users, or rather, powerful users.

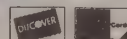
Everyone that crossed my path on the San Francisco Macworld Expo floor said, "It's nice, but everything is evolutionary." They saw the show as a stream of updates and pleasant, run-of-the-mill products. Maybe we're all a couple of rungs up the digital ladder, and not as easily impressed.

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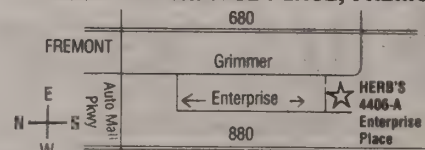
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In his keynote address, Sculley said that there will be two different multimedia Mac LC models with CD-ROM built-in released this year. One will be a regular computer market machine, while the other will be a "consumer" market model. The new Apple consumer products may create some problems at Expo time.

The Consumer Electronics Show (CES) in Las Vegas runs concurrently with the Expo. A Macintosh delegation was seen cruising the Strip, meeting all the porno film stars in the Blue Video exhibit hall, and indulging in some real partying. All single, male Apple employees will want to join the consumer products team after the home videos of the tour are quicktimed around the office. How are you going to keep them down on the farm, after they've tasted Vegas?

KEY BORED?

Some BMUG members have reported problems getting their PRAM (the parameter RAM stores settings used by many Control Panels) reset under System 7. The new way to perform this operation is to hold down the Command+Shift+P+R together when you boot your Macintosh. But some users are unable to get their keyboards to cooperate with this key combination.

A fully compatible Macintosh keyboard is supposed to have what's called "n-Key Rollover." This means that no matter how many keys are pressed down, it will register the proper KeyDown signal. In real world practice, this is almost impossible to accomplish, and even Apple's keyboards don't do it. They will begin missing key-presses around the eighth key.

Some third-party keyboards have even less rollover support. Some maintain only three simultaneous key-presses, or support them only with modifier keys (Command, Option, and Shift). Zapping the PRAM may be impossible on these third-party keyboards. You can use the Key Caps desk accessory to test your keyboard's rollover support. If it doesn't invert all four keys in its window, you're in trouble.

Test the duplicate keys on the keyboard, too. Almost all keyboards have two Shift and Option keys, and others have more. Sometimes the right side modifier keys on the keyboard will allow more rollover combinations than the left. ■

What Is BMUG?

BMUG is an educational, nonprofit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide.

Like any growing organization, it is many different things to its eleven thousand international members. BMUG supports many Special Interest Groups (SIGs), a Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6-9 pm (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West is a meeting held monthly at the Exploratorium, San Francisco's science museum.

The BMUG Office, 2055 Center Street (a half block from the BART Station) is open to the public 9 am-5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG HelpLine, (510)540-1742, and our fax number, (510)849-9026, provide technical assistance and telephonic hand-holding during business hours (11 am-5 pm). If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 700+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the TV-ROM™, a fantastic collection of public domain QuickTime videos.

Our sixteen-line BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is a part of the international USENET network (ucbvax!garnet!bmug) or (user.name.bmug@garnet.berkeley.edu). With our sixteen-line capability you are now able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG, please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office, call (510)549-BMUG, or fax (510)849-9026.



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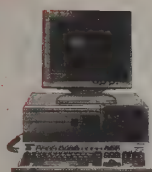
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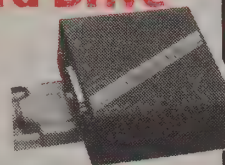


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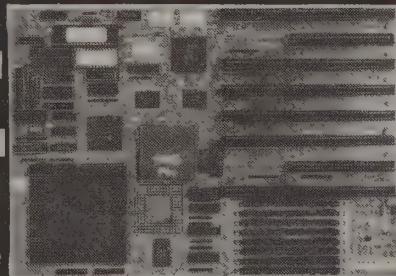
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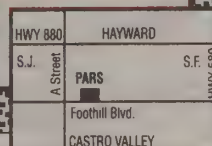
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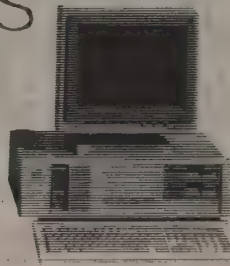


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SYDOS (External)
SQ44e 44MB, uses removable cartridge 675
SQ88e 88MB, uses removable cartridge 969
SQ400 (44MB) / SQ800 (88MB) cartridge 85/135

SYSGEN (External Floppy Drive)
Portable EasyFloppy 3.5"/5.25" for laptop 235

TEAC (Floppy Drive)
1.2MB / 360K 5.25" 59
1.44MB / 720K 3.5" w/ frame 57
2.8MB 3.5" w/ frame 95

8 FAX MACHINE

SHARP
FO-216 automatic paper cutter \$475
FO-240 error correction mode 555
FO-334 remote retrieval 615

9 I/O CARDS

DTK
Hexa I/O (XT : S.P.G.Clock,Cont) \$37
AT I/O (S.P.G.) 32
Game Card (XT, AT) 17

EVEREX
Magic AT I/O (1S 1P) 49
Magic AT I/O w/ Game port (1S 1P 1G) 57
Magic AT I/O Plus (w/ 16C550UART chip) (1S 1P) 62
Second serial port for above AT I/O cards 25
HAYES ESP enhanced serial port data comm 209

KOUWELL
1 Serial w/ NS16550AFN chipset (XT, AT) 40
Serial Card / Printer Card (XT, AT) 17
AT I/O (2S 1P) 32
AT I/O w/ IDE (2S 1P 1G) 49

10 KEYBOARDS

NORTHGATE OMNI
101NI / 102 / Ultra T \$69/69/95
Keyboard cover for 101 / 102 / Ultra 15

OTHERS
KEYTRONIC 101 45
MAXI 101 35
MITSUMI 101 35

11 LAPTOPS

EVEREX
Tempo LX 386-20SX 1MB, 1.44FD, VGA LCD, 7lb
40MB HD / 60MB HD \$1745/1895
2MB card (3rd party) 235
Battery/Charger/Modem 125/125/275
Tempo Carrier 386SX-20, 2MB, 1.44FD, VGA LCD, 5.3lb
40MB / 80MB HD 2395/2750

MICRONICS
386SX-16, 1MB, 1.44FD, 40MB HD, Windows 1545
386SX-20, 1MB, 1.44FD, 40MB HD, Windows 1745
386-25, 4MB, 1.44FD, 40MB HD, Windows 3.0 2595

PANASONIC
CF-370 386SX-20, 1MB, 1.44FD, 60MBHD 2495

SAMSUNG
Notemaster 386SX-16 1MB, 1.44FD, 20MBHD
640x480 VGA display, Win 3.0 & Lap-Link 1745

TWINHEAD
386SX-20 1MB, 1.44FD, 40MB HD, LCD 2095
386SX-20 1MB, 1.44FD, 120MB HD, LCD 2295

12 LASER PRINTER ACC.

ADOBE see Adobe in Software section #22

COMPUTER PERIPHERALS
Jet Page (for HP II) \$295
GENESIS (for HP II, III, IIIi, QMS 810, 815, 820, 825)
JetTray 1500 (1500 sheet capacity) 456
JetTray 250E (250 envelope capacity) 456

HP see HP in Printer section #20

IQ ENGINEERING
Super Cartridge 1
for all HP Laser & True HP Compatibles 139
Super Cartridge 2 for HP II, III, IIIi, IIIi 249
Super Cartridge 2 & 2LC 269
Super Cartridge 3 for HP III, IIIi 249
Desk Jet 500 Professional 99
Desk Jet Plus Professional 99

PACIFIC DATA (for HP) see top of next page

PANASONIC (see Panasonic in section #20)

MEMORY for Laser Printers: Canon, Epson, HP, IBM, Okidata, Panasonic, QMS, TI call

13 MEMORY CARDS

ACCULOGIC
RAMPA! up to 16MB (SIMM), 16 bit (AT) \$99
SIMM-ply Ram, 8/16 bit, 8MB (SIMM) max, XT AT 165
SIMM-ply Ram PS/2, 16 bit, 8MB max, PS/2-50, 60 179
SIMM-ply Ram PS/2-32, 32bit, 8MB max, PS/2-70, 80 189

EVEREX (all come OK on board)
XT 2MB, EMS 55
Ram 3000 Deluxe (AT 3MB, EMS) 84
Ram 8000 (AT 8MB, EMS) 165
Ram 10000 (AT 10MB, EMS) 125
Ram II 4000 (PS/2-5, 6, 7, 80) 175
INTEL Above Board w/ 512K 275

KOUWELL 640K RAM Card (XT only) 29

KINGSTON MEMORY for Apple, Compaq, IBM call

14 MODEMS & FAX

EVEREX
Evercom II (1200 Baud Internal) \$48
Evercom 2400 Baud Internal 79
Evercom 2400 Baud Internal w/ MNP5 139
Evercom 9600 v.32, v.42, v.42bis, MNP5 Internal 495
Evercom 2400 Baud External w/ MNP5 185
Fax Modem 2400/9600 Internal w/ MNP5 239
Pocket Modem for Laptop 2400 w/ MNP5 215

FRECOM
Fax 96 95
Fax 96 w/ 1 Linc & Far Fetch Fax 135
Fax 96 & modem (DOS / Windows) 119/129
Fax 96 w/ 1L&FF & modem (DOS / Windows) 167/185

HAYES
SmartModem 2400B Internal/ External 245/385
SmartModem 9600 V-series v.42, v.42bis, MNP5, Ext 489
Optima 96 v.32, v.42, v.42bis, External 449
Ultra 14400 v.32, v.32bis, v.42, v.42bis External 769

INTEL

9600EX v.32, v.42, v.42bis 459
14400EX v.32, v.32bis, v.42, v.42bis 555
SatsFaxion Classic Card 369

US ROBOTICS

Courier 96 v.32, v.32bis, v.42, v.42bis, MNP5, Int 525
Courier 144 v.32, v.32bis, v.42, v.42bis, MNP5, Ext 585
Courier HST-DS144 (same features as above), Ext 775
Sportster 96 v.32, v.42, v.42bis, MNP5, Int/Ext 385/429

ZOLTRIX

2400 baud modem w/ MNP5 49
96/24 send & receive fax/modem w/ MNP5 85
96/24 send & receive fax/modem MNP5 v.42 115
Pocket send & receive fax/modem, Ext 169

15 MONITORS

ADI 14" VGA, 1024x768, .28 \$299

HITACHI
CM2085MU 20", 1280x1024, .31, Non-Int 1695

MATSUSHITA (VIEWSONIC)
ViewSonic 4e 14", 1024x768, .28, Int 319
ViewSonic 5 14", 1024x768, .25, NI 515
ViewSonic 5+ 14", 1024x768, .25, NI 545
ViewSonic 5e 14", 1024x768, .28, NI 455
ViewSonic 6 14", 1024x768, .28, NI 375
ViewSonic 7 17", 1280x1024, .28, NI 1165
ViewSonic 8 20", 1280x1024, .31, NI 1655

MITSUBISHI (w/ base)
HL6605ATK 16", 1280x1024, NI 945
HL6945ATK 20", 1280x1024, .31, NI 1695
BNC Cable 39

NANAO
9070U 16", 1024x768, .28 NI 945
9080U 16", 1280x1024, .28 NI 1045
9500 20", 1280x1024, .31 NI 1745

NEC
3FGX 15", 1024x768, .28 655
4FG 15" Flat, 1024x768, .28, NI 785
5D 20", 1280x1024, .31 1995

PANASONIC
C13811 14" Super VGA, 1024x768, .28, Int 335
C1395 14" 1024x768, .28, NI 445
C1391 20" 1024x768, .31, NI 1545

POWER II
3E 14" Super VGA, 1024x768, .28, Int 299
4E (OAC) 14" Multisync, 1024x768, .28, NI 349

SAMSUNG
MA2565 12" mono amber 75
MZ4571 14" mono paperwhite 115
ML4571 14" VGA mono 640x480 125
CSA 7571 17", 1024x768, .31, NI 875

SEIKO
CM1450 14", 1024x768, .25, NI 569

SONY
1304 14", 1024x768, .25, NI 569
1604S 17", 1024x768, .25, NI 1025
1936 20", 1280x1024, .30 NI 2435

STANDARD TECHNOLOGIES
441 14", 640x480, .41 235
428UVGA 14", 1024x768, .28, NI 395

TAXAN
UV1000 20", 1280x1024, .31, NI
refurbished / new 1450/1850

WYSE
370 14" 640x480, .31, 64colors, dual port 795
ANSI 105 / ASCII Keyboard 125

16 MOTHERBOARDS

286-16 \$125
386SX-16 165
386-33 w/ 128K cache w/o CPU 195

DTK
386SX-16 / 20 220/275
386-25 w/o cache 365
386-33 64K cache 465
486-33 64K cache 875

MICRONICS
386SX-20 Gemini, Phoenix BIOS (32MB max) 285
386SX-25 270
386-33 64K cache Gemini (32MB max) 535
486SX-20 555
486-33 64K cache ISA / EISA E2 885/1355

MICRONICS ACCESSORIES
4MB Piggy Back (up to 8MB) 455
16MB Memory Card 150
32K 2-Way cache 25
upgrade to 128K / 256K cache 60/120

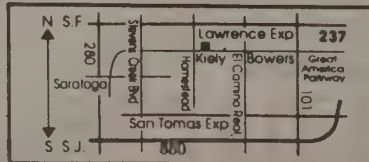
ORCHID
486-33/50 64K cache, AMI BIOS (32MB max) 895
386-40 128K cache, AMI BIOS (32MB max) 595

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- All brand names are registered trademarks
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PACIFIC

DATA PRODUCTS

FONT CARTRIDGES

25 in One! III (for HP II, IIP, IIP, IIP)	245
25 in One! III (for Deskjet 500)	105
Complete Font Library (for HP III, IIP)	255
Font Bank (NEW) (for all HP Laserjet stores soft fonts, 0.75MB / 1.5MB)	205/269
Headlines Cartridge (for HP II, IIP, IIP)	185

SPRITE

SM386SX-20	195
SM386-33/40F w/ 128K cache w/ CPU	395/405
SM486-33/40 w/ 128K cache w/o CPU	245
SM486-33/40 w/ 256K cache w/o CPU	285
VSLI 286-12	115

17 MOUSE

MousePen Pro (portable)	\$67
Thumbelina (portable)	67
GENIUS GM-F302 mouse (3 button, PS/2 compati)	42
KENSINGTON Expert mouse (serial trackball)	99
LOGITECH	
Coreless Mouse	85
Dextra serial mouse	27
First Mouse serial	37
Mouseman Serial / Bus	55/64
Mouseman Serial PS/2 combo	65
Mouseman Serial w/ Windows 3.0	119
Scanman 32 / 256	147/259
Trackman Serial / Bus / Portable	65/69/99

MICROSOFT	
Ball Point Mouse	119
Mouse Serial 200PPI	69
Mouse Serial / Bus 400PPI	89
Mouse Serial / Bus (400PPI) w/ Windows	149
MOUSE SYSTEMS	
Omni Mouse (2 button)	29
PC Mouse III Serial (optical)	69
PC Mouse III Bus w/ Power Panel (optical)	69
PC Trackball	39
The White Mouse w/ Power Panel	56

MICROSOFT	
Ball Point Mouse	119
Mouse Serial 200PPI	69
Mouse Serial / Bus 400PPI	89
Mouse Serial / Bus (400PPI) w/ Windows	149

MOUSE SYSTEMS	
Omni Mouse (2 button)	29
PC Mouse III Serial (optical)	69
PC Mouse III Bus w/ Power Panel (optical)	69
PC Trackball	39
The White Mouse w/ Power Panel	56

18 NETWORK

3COM	
3C503 8 bit coax ethernet	187
5 packs (5 boards 1 manual)	799
3C507 16 bit coax ethernet / 5 packs	279/1250
3C503-TP 8 bit TP ethernet / 5 packs	250/1050
3C507-TP 16 bit TP ethernet / 5 packs	310/1450

ARTISOFT

LanTastic AE-2 Ethernet starter kit, 10Mbps, v4.0	449
LanTastic AE-3 Ethernet starter kit, 10Mbps, v4.0	535
LanTastic 10BaseT starter kit, v4.0	595
LanTastic 2Mbps starter kit / adapter	355/145
LanTastic Z (2 stations)	89
LanTastic /AI software (individual node)	69
LanTastic Ethernet Software Kit (NOS v4.0)	79
LanTastic AE-2 Ethernet adapter	204
LanTastic AE-3 Ethernet adapter	235
LanTastic AE-2/T 16bit 10Base-T adapter	210
LanTastic AE-1/T 8bit 10Base-T adapter	135
64K RAM upgrade for AE-2, AE-3 adapter	45
LanTastic for Network	299
LanTastic for Windows Network Utilities	175
Central Station Connectivity Processor	405
Peer-Hub 10Base-T concentrator	270
Peer-Hub AUI interface kit	270
Network Eye (Remote Control Access Program)	129
Remote Boot ROM for AE-2, AE-3 adapter	45
Sounding Board adapter kit	72

COMPLAN

8 bit E100 coax / ET500 TP ethernet	90/115
16 bit E200 coax / ET600 TP ethernet	105/129
32 bit E900 coax / E950 TP ethernet	215/229
Boot Prom	25
Pocket adapter for coax ethernet / arcnet	185/135
8 port / 12 port concentrator (10BaseT ethernet)/379/535	

HAYES

Ethermate 8 ethernet adapter 8 bit	99
INTEL	
EtherExpress 16 / 16TP / EISA	135/157/559
NetPort for Ethernet / TP / Token Ring	469/479/825
NetSatisfaction	635

NOVELL

8 bit NE1000 coax ethernet	145/175
16 bit NE2000 coax / NE2000TP TP ethernet	169/185
Network Lite	74
Network 2.2 5 / 10 users	499/1090
50 / 100 users	1935/2955
Network 3.11 10 / 20 users	1375/1935
100 / 250 users	3885/6885

SMC (WESTERN DIGITAL)

Ethercard Plus Elite 8bit / 16 bit coax	143/173
Ethercard Elite 16T 16 bit (10BaseT TP)	199
Ethercard Elite 16 combo (coax/10BaseT)	225
Ethercard Plus/A for PS/2	220
Network Boot Rom	34
CABLES & ACCESSORIES	call

for **HP** HEWLETT
PACKARD

POSTSCRIPT Emulation

Pacific Page & 2MB (for HP II)	389
Pacific Page P.E. (for HP IIP, IIP, IIP, IIP)	325
Pacific Page XL (for HP IIP, IIP, IIP)	149
comes with 2MB & accelerator board	
8 times faster than other cartridges	715
Pacific Page XL (for HP IIP, IIP, IIP and Mac)	845
Pacific Page P.E. & Pacific Talk	
for Mac & HP IIP, IIP, IIP, IIP	450

19 POWER SUPPLIES

AMERICAN POWER CONVERSION (UPS)	
APC-400 Smart-UPS 400VA, 2-3ms, 15 mins	\$315
APC-800 Back-UPS 800RT 800VA, 2-4ms, 10mins	565
APC-750 On-Line UPS 750VA, 0ms, 15mins	1365
LEADMAN	
150W / 200W (XT) (UL)	40/48
200W for Baby AT & Tower	45
230W for AT / Tower	48/59
550W / 1200W (UPS)	279/999

20 PRINTERS

CANON	
BJ-10ex (Bubble Jet) 360 dpi, 37K buf	\$319
Auto Sheet Feeder	79
Bag / Battery / Print Head Cartridge	39/45/22

CITIZEN	
GSX 200 (9 pin)	165
GSX 130 / GSX 140 Plus (24 pin)	239/299
Color Option for above printers	45
Auto Sheet Feeder for GSX 140	109
GSX 145 (24 pin, 132 column)	379
Color option for GSX 145	65
PN48 notebook printer, 1ppm, 2lb. battery, case	399

EVEREX ABATON (Postscript compatible)	
LaserScript LX 2.5MB, 6ppm, 35 fonts	1475

FUJITSU DL1100 mono	295
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HEWLETT PACKARD (LaserJet w/ toner)	
Desk Jet 500 / 500C	395/695
Jet Ram Memory 256K	69
Laser Jet IIP+ / IIP / IIP	775/1475/995
Laser Jet IIP / IIP / IIP	2395/3495

Accessories:	
Envelope Tray (15 envelopes) for IIP	69
Envelope Tray for IIP, IIP	79
Envelope Feeder for IIP	295
HP Postscript Cartridge	395
Legal Tray for HP II & IIP	69
Lower Cassette (w/ letter tray) IIP, IIP	160
Toner for HP II / IIP / IIP / IIP	85/75/85/75
Jet Ram Memory for HP IIP, IIP, IIP, IIP	75/115/155/195

1/2 / 3 / 4 MB	75/115/155/195
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MICROTEK TrueLaser 6ppm, 3MB, 35 fonts	1355
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PANASONIC	
1180 / 1123 / 2180	147/195/call
1124 / 1624 / 1695	279/349/359
2624 (24 pin, quiet printer 46.5 dBA)	379
32K Buffer for above printers	65
Serial Interface card	75
4410 Laser, 8ppm	645
1MB / 2MB / 4MB Memory Card	99/139/219
Developer KK-PDP2	95
Drum KK-PDM2	99
Envelope Tray KK-P431	59
Fonts Card	95
Legal Tray KK-P425	45
Ozone Filter KK-PTT2	26
Toner KK-P451	39
4450 1MB Memory	139
4450 Laser, 11ppm	1055
1MB / 2MB / 4MB Memory Card	99/139/219
Developer KK-PDP1	95
Drum KK-PDM1	145
Envelope Tray KK-P430	59
Fonts Card	95
Legal Tray KK-P420	45
Ozone Filter KK-PFT1	29
Toner KK-P450	35
4455 (Postscript) 11ppm	1685
1MB Memory card	159
others same as 4450	

QMS (Adobe Postscript)	
QMS-PS 410 4ppm, 2MB, 45 Fonts	1545
1MB / 2MB / 4MB Memory	125/165/245
Envelope / Legal / Letter Tray	69/59/69
Lower Cassette with Letter Tray	160
Toner	95
QMS-PS 815MR 8ppm, 600dpi, 45 typefaces	3895
SEIKO Smart Label Printer Plus (IBM/APPLE)	169

TEXAS INSTRUMENT	
MicroLaser Plus PS17 / PS35 9ppm	1225/1455
PELICAN All type ribbons	visit us

21 SCANNER	
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TAMARACK ArtScan Flatbed Scanner 24 bit color,	
256 gray levels, comes with ColorShop 24 and	
Photostory Image editing software, SCSI interface	
TTI 3000C 300dpi	\$1245

MEMORY

1-2-4 Plus (for HP II, IIP)	
1MB	\$139
2MB	179
4MB	269
Pacific 4 Memory (for HP IIP, IIP, IIP, IIP)	
1MB	109
2MB	149
4MB	239
Pacific SI Memory (for HP IIP, IIP)	
1MB / 4MB	99/269
LP Memory (for IBM 4019E)	
1MB / 2MB / 3.5MB	129/179/249
Pacific T Memory (for Epson 6000)	
2MB / 4MB	209/299

TTI 6000C 600dpi	1345
Slide Scan Kit (for transparency, slide, X-ray)	695
Hand scanners	see Logitech in section #18

22 SOFTWARE

ADOBE	
Complete Type Library	call
Illustrator for Mac / Windows	360/295
Plus Pack for Mac / Windows	119
Postscript Cartridge for HP II	239
Type Cartridge 1: Display Faces	99
Type Cartridge 2: Best Sellers	99
Streamline for Windows	125
Type Align for Mac / Windows	63
Type Manager for Mac / Windows	59
Type Set 1/2/3 for Mac / Windows	65/65/99
Type Set: Invitations & Awards	87
Type Set: Letter, Memos & Faxes	87
Type Set: Overheads & Slides	87
Type Set: Spreadsheets & Graphs	87

BORLAND	
C++ Professional 3.0 for Windows	299
C++ 3.0 for Windows & Application Frameworks	455
Base IV / Paradox 3.5	435/445
Quattro Pro 3.1	229
Screenery (Windows wallpaper, screen saver)	25
Screen C++ 2nd edition (DOS)	63
Turbo C++ for Windows	99
Turbo Debugger & Tools 2.0	99
Turbo Pascal for Windows	119

MICROSOFT	
DOS 3.3 / 4.01 / 5.0	59/29/59
DOS 4.01 w/ Windows	99
DOS 5.0 w/ Windows	125
Entertainment Pack for Windows I / II / III	28
Excel for Windows	299
Flight Simulator	39
Maxit Control Yoke / Pedals (IBM)	49/39
Learning DOS	35
Microsoft C 6.0	299
Microsoft C 6.0 & Quick C for Win & SDK	465
Money for Windows	49
Multimedia Development Kit	299
Office for Win/Excel, Word, Power Point, Mail	449
PC Mail Server for DOS & Windows	435
Power Point for Windows	299
Project for Windows 1.0	419
Publisher for Windows	125
Quick Basic Compiler 4.5	62
Quick C for DOS / Windows	69/125
Quick C Compiler w/ Quick Assembler	125
Software Development Kit 3.0 (SDK)	305
Visual Basic for Windows	125
Windows 3.0	59
Windows 3 Device Driver Development Kit	305
Word for DOS / Windows	207/279
Works for DOS / Windows	95/125

SANTA CRUZ OPERATIONS (SCO)	
SCO XENIX-NET 386 single server v1.3.0	465
UNIX 386 Dev Sys 3.2.2 C-Compiler & Dev Tools	675
UNIX 386 GT Oper Sys 3.2.2 Multituser	659
XENIX 386 Dev Sys 2.3.1 C-Compiler & Dev Tools	545
XENIX 386 GT Oper Sys 2.3.4	555

VENTURA SOFTWARE	
Educational administrative, student, faculty and educational institutions special	
Ventura Publisher 3.0 Gold Series	
DOS / Windows / Mac	199

WORDPERFECT	
DataPerfect / DrawPerfect	265/245
Figure Library (Bus/Edu/Fig/Holiday/Leisure)	79 each
LetterPerfect / PlanPerfect	17/235
WordPerfect 5.1 for DOS/Windows/trade-up 236/	575
WordPerfect Executive / Office	145/95

OTHERS	
3-D Charts to Go!	52
After Dark for Windows (screen saver)	29
Aldus Freehand 3.0 for Windows	379
PageMaker 4.0 for Windows	469
Photostyler 1.1 for Windows	469
Autopart (road atlas)	46
Carbon Copy Plus 6.0	109
Central Point Anti-virus / Backup 6.0	74/50
PC Tools 7.1 w/ Anti-virus	99
Clipper 5.01	479
Corel Draw 2.0	349
Correct Grammar for DOS/Windows	49/59
DR DOS 6.0	68
Definition Plus! (American Heritage Dict.)	59
Direct Access	63

OTHERS

Driver & cable for Mac & HP II, IIP, IIP, IIP	\$95
Pacific Connect (for HP II, IIP, IIP, IIP)	
connect up to 5 PC and/or Mac to a printer	
256K	265
1.25 MB	299
Pacific Print	
(for network & HP II, IIP, IIP, IIP)	99
Plotter in a Cartridge (for HP II)	225
Plotter in a Cartridge P.E.	
(for HP IIP, IIP, IIP, IIP)	225

Fastback Plus 2.1 / 3.0	112/117
Geoworks Ensemble Pro	122
Grammatik IV for DOS / Windows	57
hDC Windows Express	55
HP New Wave 3.0	104
Hardvard Graphics 3.0 for Windows	355
Intermission for Win (screen saver)	29
LapLink Pro v4	89
Lotus 1-2-3 for Windows	389
Lotus 1-2-3 Rel 2.3 / 3.1 for DOS	315/379
Lotus Ami Pro for Windows	279
MacPrint	85
More Fonts / Display Faces	77
Multimate 4.0	235
Norton Back up for DOS & Windows	83
Norton Desktop for Windows	89
Norton Utilities 6.01	112
PC Anywhere 4.5 Remote and Host	115
PFS: First Choice (w/ Prodigy start-up kit)	79
Pacifi 2000	24
Pro-scan (virus identifier & remover)	40
Professor Windows	32
Quarterdeck DesqView 286/386	79/125
Qemm 386 v6.0 / Manifest / Oram	62/41/45
Quicken for DOS/ Mac/ Windows	49
QuickPlay (payroll)	39
Screen Craze	29
Sound Blaster / Sound Blaster Pro	115/199
CMS Chip / Speaker / MIDI kit	29/29/59
Speedstor 6.0	61
Speedstor Plus (for SCSI hard drive)	75
SpinRite II	60
Stacker Data Compression 2.0 / Stacker AT/16	88/179
Superstor	79
The Far Side (computer calendar)	45
Turbo Tax Federal 1040(Final edition) DOS/Win	49/59
Ventura Publisher Gold for Windows 3.0 / 4.0	465/489
XTree Gold 2.5	89
Winfax Pro	72
Other educational / games software	visit us

23 TAPE BACKUP

COLORADO	
DJ-10 (120MB) QIC-40	\$205
DJ-20 (250MB) QIC-80	265
AB-11 External tape port	45
Cable (2 Floppies & tape back up)	9
FC-10 Controller	95
KE-09 Ext kit w/o controller	75
TC-15 controller w/ data compression	195

EVEREX	
EV-811 8 bit QIC-02 for XT AT	105
EV-880 floppy tape adapter for AT	65

MOUNTAIN NETWORK SOLUTIONS

FS2100 2.2GB, 8mm, w/ SCSI cont, ext	4895
FS2250 150-250MB, QIC-02, w/ cont, ext	1435
FS2500 250MB, w/ SCSI cont, ext	1565

ALL SIZES OF CASSETTES

A Success Story

New Horizons Stands Out In Sluggish Software Market

BY MATTHEW LEEDS

There are few success stories in the Amiga software business. It's a tough market. The bulk of the Amiga's success has been either in games or video products. It's tough to produce good quality software for business and home use and grow a successful business these days, but one of the standouts is New Horizons Software of Austin, Texas.

NEW HORIZONS FINDS A NEED AND FILLS IT

New Horizons started a long time ago with its first product for the Amiga—Flow, an outline processor. This was a pretty long stretch, as this type of product generally sells far better to business than in the home. It sold well enough for New Horizons to continue making Amiga software, though, and they've continued to improve the product. Its latest release, v3.0, incorporates the cutting edge of Amiga innovation by including an AREXX port, full support for Kickstart 2.0, and a spell checker with fifty thousand-word dictionary.

AMIGA

After Flow came ProWrite, the word processor that combined multiple fonts, color text, and graphics. The latest release of ProWrite, v3.2, includes a one hundred thousand-word spelling checker that can check as you type, multiple columns with snaking or side-by-side text flow, a thesaurus with over three hundred thousand cross references, macros, an AREXX port, mail merge, headers and footers, text wrap around graphics, support for HAM graphics, speaking capability (reads back document contents), auto page numbering, built-in PostScript support, Kickstart 2.0 support, read/write of Pro Page text files with formatting codes, and automatically timed saves.

To support the multiple font capability of ProWrite, New Horizons came out with its own sets of fonts, ProFonts, designed for the printed page—unlike the Amiga's own fonts, which were designed for their appearance on the screen. To make the use of these fonts easier they also released a utility called System Mover, the first intelligent font mover. Since fonts on the Amiga have more than one file associated with them, and do not have icons associated with those files, this made the installation process much simpler.

ProWrite has been a remarkable success, but its full feature set required 1MB of RAM to run. The large number of Amiga 500 owners who only had 512K of RAM were unable to take advantage of ProWrite's power. New Horizons found a way to remove some of the features from ProWrite while still leaving most of the functionality and user friendliness.

The result was QuickWrite. It retained the text with multiple styles and color capability, the mail merge and AREXX port, the Pro Page compatibility, the auto page numbering, and many other features. The spelling checker was downsized to fifty thousand words and the thesaurus disappeared, as did the PostScript support. QuickWrite offered Amiga 500 users a capable and Amiga-designed word processor at an affordable price.

Not content with covering the writing needs of the Amiga community, New Horizons then set its sights on creating an affordable

structured drawing program. DesignWorks combines a powerful feature set, highly responsive interface, and respectable speed. It offers Bezier curves, an unlimited number of drawing layers, customizable multi color fill patterns, and a text system that lets you use any combination of Amiga fonts, sizes, styles, and colors. IFF images can be imported and exported, and up to ten drawings can be open at the same time. The expected AREXX port is present, as is the printer control, complete with sideways printing. And in concert with the design philosophy of QuickWrite, DesignWorks will run in 512K of

ProWrite has been a remarkable success, but its full feature set required 1MB of RAM, making it unavailable to A500 users. New Horizons found a way to remove some of the features from ProWrite while keeping most of the functionality and user friendliness. The result was QuickWrite.

RAM with support for Kickstart 2.0.

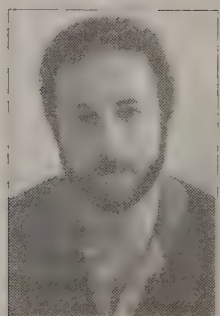
Further proof of New Horizons' success came in the middle of last year with their acquisition of Central Coast Software. The utilities they publish—Quarterback, Quarterback Tools, Dos-2-Dos, and Mac-2-Dos—should all benefit from the creative edge that New Horizons brings to Amiga software.

CDTV'S LACKLUSTER SALES

Less of a success is Commodore's CDTV. At the Consumer Electronics Show in Las Vegas this January, Commodore representatives announced the sales figures for CDTV through the end of 1991. Only five thousand CDTV units were sold in North America, and just thirty thousand were sold overseas. It's difficult to decide if Commodore expected to sell more units in the US, given their limited availability in most of the country most of the year, the very limited advertising support that was provided, and the lackluster software base.

With an installed base of only thirty-five thousand machines, new developers are not likely to be lining up.

Informal announcements from Commodore indicate that all new



Copyright © 1992. All rights reserved. Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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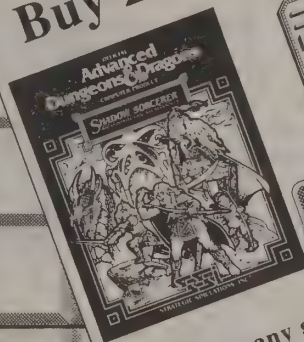
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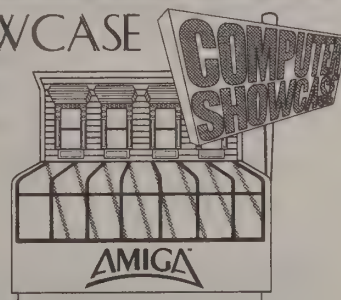
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19380

ASDG
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Madison, WI 53713

Amiga's are now shipping with 2.0 ROMs. There may still be some machines with 1.3 ROMs in the distribution pipeline, but Commodore has made the cutover in production. The open question at this point in time is when Commodore will switch the CDTV over to 2.0. Perhaps at the same time that they start shipping the new display adapter that uses the DCTV technology? This can only further fragment the market for CDTV products, as many of the current CDTV titles will not run under 2.0 and have no idea how to function with DCTV.

THE A500 PLUS: SHIPPING, BUT ONLY IN EUROPE

In my AmiExpo report I described Commodore's plans to release a new version of the 500. Called the A500 Plus, it was to include the ECS chip set, 1MB of chip RAM, chip RAM expansion to 2MB via a new A501-type RAM expansion unit, Kickstart 2.0 in ROM, and a built-in clock. This machine is shipping in Europe, but the US sales organization has no plans to introduce it in this country. Once again Commodore's US sales and marketing has shot itself in the foot. Your only hope of seeing (and being able to buy) one of these new machines is to write letters to Commodore asking for them to market the A500 Plus in the US.

CHARITYWARE FROM ASDG

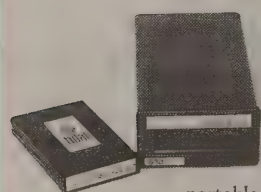
Finally, a tip of the hat to the big-hearted gang at ASDG. They have released an arcade-style game called RingWar as a new form of

It's difficult to decide if Commodore expected to sell more CDTV units in the US, given limited availability, very limited advertising support, and the lackluster software base. With an installed base of only thirty-five thousand machines, new developers are not likely to be lining up.

shareware, called charityware. Instead of sending a voluntary donation to the author of the program, ASDG asks that you send a donation to either the American Cancer Society, the Muscular Dystrophy Association, or the American Red Cross. The program will be available on electronic bulletin boards and other freely redistributable software distribution channels. ■

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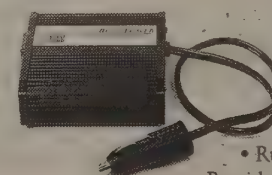
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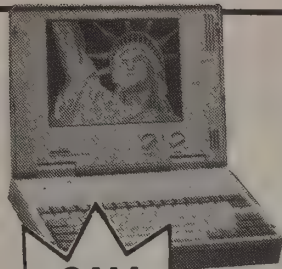
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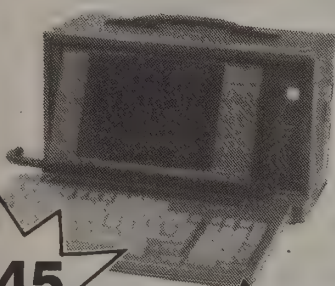
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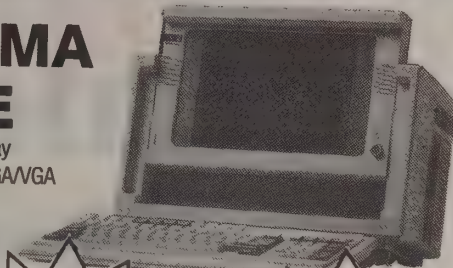


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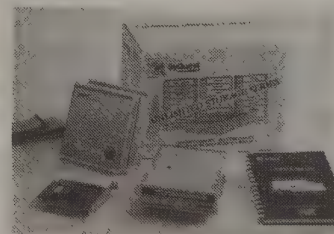
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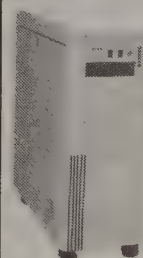


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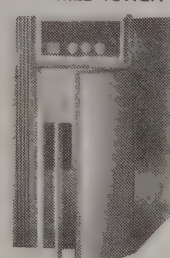
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Calendar Of Events

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February 16 Computer Show & Sale. Hayward. MarketPro. Call: (415)388-8893.

February 17 Installing NetWare v3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 18 Harvard Graphics Class. San Francisco. Abacus Training. Call: (415)759-2481.

February 18 Troubleshooting A Novell Network v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 18-20 CASE World Conference & Exposition. Santa Clara. Digital Consulting. Call: (508)470-3880.

February 19 Advanced WordPerfect 5.1 Class. Emeryville. Northwest-Computer Systems. Call: (510)653-0808.

February 19 Intermediate Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 19 Open Forum With Author Robert X. Cringely. San Jose. Computer Literacy Bookshops, Inc. Call: (408)435-1118.

February 19 WordPerfect For The Legal Profession Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 19-20 Pen Computing 1992: A Technologic Conference. San Jose. Technologic Partners. Call: (212)696-9330.

February 20 DOS And Microhardware Class. Oakland. International Data Networks. Call: (510)465-9084.

February 20 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 20-21 Advanced Microsoft Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 20-21 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 22 Computer Show & Sale. Cow Palace. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

February 22 IBM PC Clone Troubleshooting And Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

February 23 Computer Show & Sale. Sacramento. MarketPro. Call: (415)388-8893.

February 23 HyperCard Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 23-28 Software Development '92 Conference & Expo. Santa Clara. Software Development Shows. Call: (415)905-2741.

February 24-25 Database/Word Processing Software Workshop. San Francisco. Syman-tec Training Group. Call: (415)898-1919.

February 24-25 Intro To UNIX Course. Berkeley. UC Berkeley Extension. Call: (510)642-4111.

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**Deadline For Submissions:
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This year's After Dark Display Contest has been expanded to cover both Windows and Macintosh environments, as well as a new category for Computer Artists. Winning displays will be included in future releases of After Dark. First place winners in the Macintosh Programmer, Windows Programmer, and Computer Artist categories will receive a \$2500 shopping spree from MacConnection or PC Connection. There will also be a \$10,000 cash Grand Prize for Best Entry Overall. For information and contest entry form, Contact: Berkeley Systems, Inc., 2095 Rose St., Berkeley, CA 94709. (510)540-5535.

FEBRUARY 19

UNIX AND TELECOMMUNICATIONS: JUST THE BASICS, PLEASE

Galleria Park Hotel, San Francisco

February's meeting of the Society for Technical Communications will present a broad and basic view of UNIX and telecommunications from the writer's perspective and address the type of information needed in order to write about UNIX-based or telecommunications products or services. Richard Hart will cover UNIX fundamentals and provide a rundown on the DOS vs. UNIX commands. The second speaker, Steve Davis, will discuss telecommunications basics. For more information, Call: S.F. Chapter, Society for Technical Communication, (510)946-3539 or (415)985-7121.

February 24-26 Thermal Printing Conference. Monterey. BIS Strategic Decisions. Call: 1-800-874-9980.

February 25 Lotus 1-2-3 Class. San Francisco. The Software Training Group. Call: (415)397-4158.

February 25 Protecting Your Business Life-line: Information Security In The '90s Seminar. San Francisco. CSI. Call: (415)905-2626.

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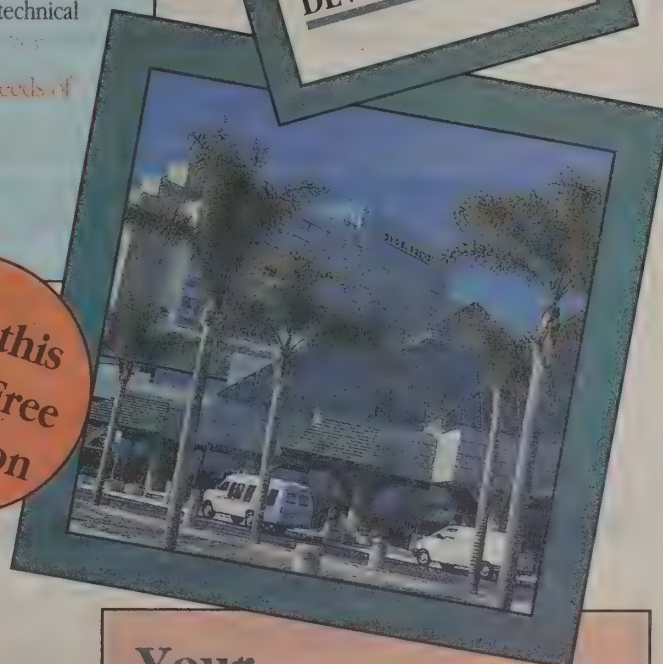
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Gene Wang

Vice President & General Manager, Business Languages Unit, Borland



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- Admission to the Computer Language-Jolt Product Awards and the Software Development '92 Keynote Donald A. Norman, author of *The Design of Everyday Things*, Tuesday, Feb. 25, 7:00pm to 8:00 pm.
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Calendar Of Events continued

February 25 Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 25-26 MS-DOS For CAD Course. San Francisco. SFSU Extended Education. Call: (415)338-1205.

February 25-March 10 Oasis Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

February 26 Advanced Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 26 Computer Imaging/Digital Photography Seminar. San Francisco. Adolph Gasser, Inc. Camera & Video. Call: (415)495-3852 ext. 150.

February 26 IEEE Computer Society Meeting: Fuzzy Logic And The Calculus Of Fuzzy If-Then Rules. San Francisco. IEEE Computer Society. Call: (415)905-4400.

February 26 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 26 Intro To Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 26 Microsoft Excel 3.0 Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

February 26 Open Forum With Dr. P.J. Plauger. San Jose. Computer Literacy Bookshops, Inc. Call: (408)435-1118.

February 26-27 UNIX Shell Programming Course. Berkeley. UC Berkeley Extension. Call: (510)642-4111.

February 27 Database Design Seminar. Oakland. Computer/Management Solutions. Call: (510)451-5316.

February 27 Illustrator Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 27 Intermediate Lotus 1-2-3 Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

February 27 Scanner Class. San Francisco. Media Alliance Computer Access. Call: (415)771-7133.

February 27-28 AutoCAD Release 11 Update Training Course. San Francisco. SFSU Extended Education. Call: (415)338-1205.

February 27-28 Legal Word For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 27-28 Understanding Data Communications Class. San Francisco. Data-Tech Institute. Call: (201)478-5400.

February 28 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

February 28 Intro To Data Communications Class. Oakland. International Data Networks. Call: (510)465-9084.

February 28 NetWare v3.11 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

February 29 Advanced DOS & Batch File Programming Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

February 29 Computer Show & Sale. San Mateo County Expo Center. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

February 29 Computer Show & Sale. Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

February 29 DTP With WordPerfect 5.0/5.1

Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

February 29 Survey Of Popular Utility Software Seminar. San Francisco. SFPCUG. Call: (415)821-1310.

MARCH

March 2 NetWare Operator Course. Alameda. SymPro. Call: (510)865-0600.

March 2 OS/2 Basics Course. Alameda. SymPro. Call: (510)865-0600.

March 2 Using WordPerfect (Mac) Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 2-3 Integrating Image And Information Processing Seminar. San Francisco. Digital Consulting. Call: (508)470-3880.

March 2-3 Windows On NetWare Class. San Jose. Data-Tech Institute. Call: (201)478-5400.

March 2-4 Project Management Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 3 Intro WordPerfect For Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 3 NetWare Supervisor Course. Alameda. SymPro. Call: (510)865-0600.

March 3-5 OS/2 Systems Support Course. Alameda. SymPro. Call: (510)865-0600.

March 3-26 Intro To AutoCAD Course. San Francisco. SFSU Extended Education. Call: (415)338-1205.

March 4 Installing NetWare v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 4 NetWare System Manager Course. Alameda. SymPro. Call: (510)865-0600.

March 4 NetWare v2.2 System Manager Class. Oakland. International Data Networks. Call: (510)465-9084.

March 4 Using System 7.0 For The Mac Class. San Jose. Abacus Training. Call: (415)759-2481.

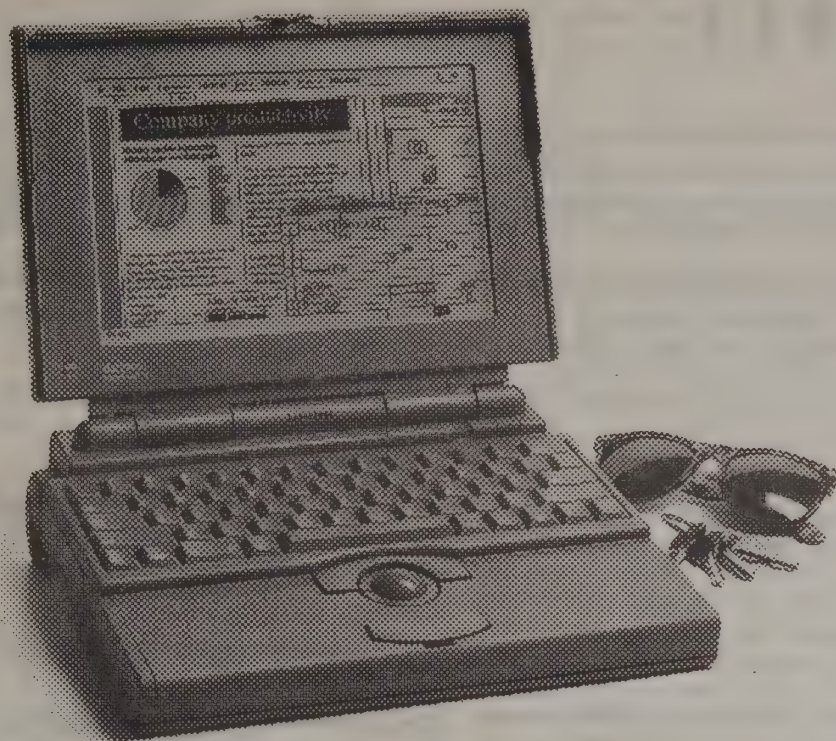
March 4-5 Intermediate MacWrite II Class. San Jose. Abacus Training. Call: (415)759-2481.

March 5 Creative Digital Photography Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

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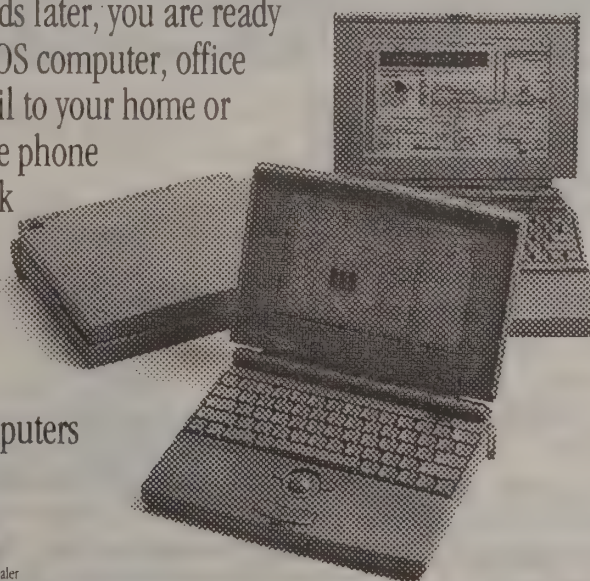


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RESOURCES

Calendar Of Events continued

March 5-6 An Intensive Intro To T1/T3 Networking Seminar. San Francisco. Data-Tech Institute. Call: (201)478-5400.

March 7 Computer Show & Sale. Santa Clara County Fairgrounds. Richard James Corp. Call: 1-800-533-7220. BBS: (415)464-6408.

March 8 Computer Show & Sale. Concord. MarketPro. Call: (415)388-8893.

March 9 Project Management Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 9-10 UNIX System Administration Workshop. Berkeley. UC Berkeley Extension. Call: (510)642-4111.

March 9-13 LAN Manager-Network Administrator Course. Alameda. SymPro. Call: (510)865-0600.

March 9-13 Softdesk (DCA) Civilsoft Course. San Francisco. SFSU Extended Education. Call: (415)338-1205.

March 10 Installing NetWare v3.11 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 10-12 The International Conference

& Exposition On Multimedia And CD-ROM. San Francisco. Microsoft. Call: (203)964-8287.

March 11 Advanced NetWare v2.2 System Manager Class. Oakland. International Data Networks. Call: (510)465-9084.

March 11 Beginning Claris Resolve Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 11 Beginning Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 11 Intro To Quattro Pro Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 11 NetWare v2.2 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 12 Intermediate WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 12 Windows 3.0 Level One Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 12 WordPerfect For The Legal Profes-

sion Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 13 Advanced WordPerfect 5.1 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 13 Intermediate Claris Resolve Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 14 Building & Upgrading An IBM PC Clone Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 14 Computer Show & Sale. San Rafael. MarketPro. Call: (415)388-8893.

March 15 Computer Show & Sale. Hayward. MarketPro. Call: (415)388-8893.

March 16 Designing High-Quality User Interface Workshop. Berkeley. UC Berkeley Extension. Call: (510)642-4111.

March 16 Intro To Quattro Pro Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 16-17 Database/Word Processing Software Workshop. San Francisco. Symantec Training Group. Call: (415)898-1919.

March 16-19 Windows For Support Profes-

Continued

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Feb. 29 - SANTA ROSA
Sonoma Co. Fairgrounds

* Mar. 8 - CONCORD
Holiday Inn

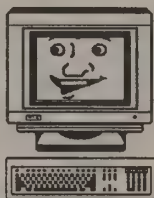
Mar. 14. - SAN RAFAEL
Holiday Inn - Terra Linda

* Mar. 15 - HAYWARD
Centennial Hall

* Mar. 22 - VALLEJO
Solano Co. Fairgrounds

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117	386-25sx C&T Chipset	\$198.00
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054	DR DOS 6.0 (OEM Version)	\$20.00

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147	OAK VGA card with 256K memory	\$38.00
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153B	Orchid Fahrenheit 1280 (1 Meg) - Hot!	\$295.00

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RESOURCES

Calendar Of Events continued

sionals Course. Alameda. SymPro. Call: (510)865-0600.

March 17 Intro To The PC/Beginning DOS 3.X Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 17 NetWare v3.11 System Administrator Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 17-18 The Macintosh Survival Course. San Jose. Data-Tech Institute. Call: (201)478-5400.

March 18 Intermediate Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18 Intro To Paradox Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 18 NetWare Service And Support Class. Oakland. International Data Networks. Call: (510)465-9084.

March 18 Troubleshooting A Novell Network v2.2 Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 18-20 The Second Conference On Computers, Freedom, And Privacy. Wash-

ington, DC. ACM. Call: (202)994-7238.

March 18-25 Modelshop Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Advanced PhotoShop Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Creative Digital Photography Class. San Francisco. Center For Electronic Art. Call: (415)882-7063.

March 19 Desktop Publishing Class. San Francisco. The Software Training Group. Call: (415)397-4158.

March 19 DOS And Microhardware Class. Oakland. International Data Networks. Call: (510)465-9084.

March 19 Intermediate Microsoft Excel Class. San Francisco. Abacus Training. Call: (415)759-2481.

March 19-20 Advanced Microsoft Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 19-20 The Macintosh Survival Course. San Francisco. Data-Tech Institute. Call: (201)478-5400.

March 19-20 NetWare 3.11 OS Features Course. Alameda. SymPro. Call: (510)865-0600.

March 19-20 PC Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 19-21 Digital Photography Conference '92. San Francisco. NPPA. Call: Lance Iversen, (415)957-0937.

March 20 Intro To Excel Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 21 IBM PC Clone Troubleshooting And Repair Workshop. Oakland. Excel Micro Solutions. Call: (510)836-2040.

March 21 Internetworking Course. San Francisco. SFSU Extended Education. Call: (415)338-1373.

March 22 Computer Show. San Francisco. Ft. Mason Shows. Call: (916)725-0228.

March 22 Computer Show & Sale. Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

March 23 Intro To Macintosh Networks Class. San Francisco. Abacus Training. Call: (415)759-2481.

Continued on page 252

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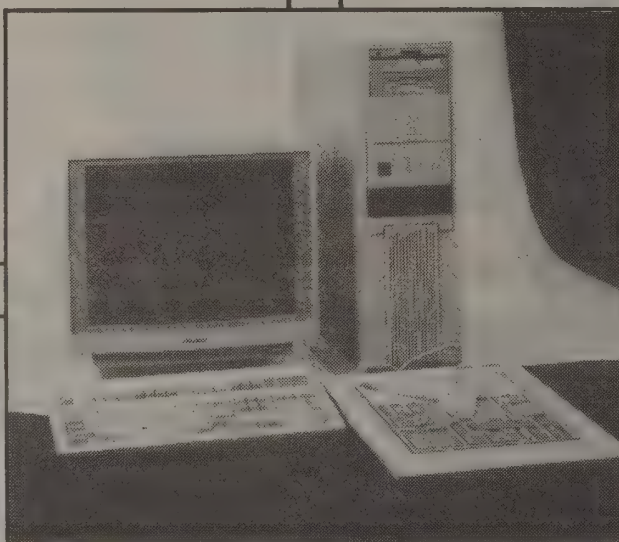
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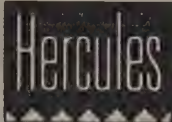


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USER GROUP NETWORK

Bay Area Boards

By Kathleen Creighton

Starting this issue, we'll be spotlighting bulletin board systems located in the Bay Area. If you'd like your BBS to be considered for this coverage, please send information (including a voice phone number and contact name) to Bay Area Boards, MicroTimes, 3470 Buskirk Avenue, Pleasant Hill, CA 94523; fax (510)934-3958; Internet microx@well.sf.ca.us; MCI MicroTimes.

SF Net

Unless an online service has a budget to equal Prodigy's, selling telecommunications services to people who are wary of computer/modem technology is a Herculean task. If it's to be more than a one-line hobby BBS, and especially if it's to be a money-making enterprise, an online service has to distinguish itself as useful or interesting enough to motivate potential users to bite the virtual bullet and log in.

Enter master salesman Wayne Gregori, who is carving out a niche by introducing his service, SF Net, through Bay Area coffee bars. His idea has been sufficiently different to gain SF Net free publicity through local and national TV, radio and print news stories, including a lead story on the front page of the Sunday edition of the *San Francisco Examiner/Chronicle*.

Gregori, who also founded Compact Disk Exchange, is an enthusiastic guy with an interesting idea. He's fashioned club tables from a dozen simple PC terminals with the screen mounted flush to a black veneer tabletop, reminiscent of video game cocktail tables. A screensaver blanks the screen when the terminal is not in use, and the keyboard section can be swiveled upside down when the table is to be used for nothing more than a bagel and a caffe latte.

A tap on the plastic-covered keyboard lights up a menu for information and dial out. To use the service, the user buys a ticket at the counter and taps in the ticket's code number, which then activates the line directly to SF Net. If the line is busy (SF Net has eight incoming coffee house lines), the unit automatically redials until connect. A \$1 ticket buys fifteen minutes of online time. Home users can dial into SF Net, too, on one of seventeen lines set aside for that purpose.

For those who enjoy this sort of thing, SF Net's biggest draw is the mostly anonymous chat-line atmosphere. ("Handles" instead of actual names are permitted.) Coffee bar participants and SF Net subscribers (\$5.00 month) calling from home can chat to their hearts' content, "meet" new people, get the latest on the evening's parties. Non-subscriber home users see only a limited view of the system and have no access to chat, but the service has teamed up with San Francisco's free newspaper, *SF Weekly*, and their message base, music and comedy club calendar, and an underused classified ad board are available to anyone who logs in.

SF Net runs on a version of TBBS customized for ease of use, and the interface is quite intuitive in most areas (although Gregori needs to use a spell-checker). It's a pleasing presentation of text on a white-on-black screen, with no ANSI graphics, which Gregori claims would slow access down. Using TBBS in its current version, though, is a sort of double-edged sword. On the one hand, SF Net is able to offer small searchable databases for "penpals" or "love connection" (users who identify themselves as female comprise about 15-20% of the "love connection" database, which is average for most online systems); on the other hand, the discussion option is a typical BBS-style "message base," which might be a disappointment to more sophisticated online service users who appreciate serious online conversation, since the message bases are underused and tend toward juvenilia.

The biggest disappointment is that SF Net terminals log on to SF Net only. Those with accounts on other systems who would gladly pay for the ability to log in remotely are out of luck, although it would be easy to set up a menu of locally accessible systems, such as The WELL and CompuServe, and not difficult to accommodate Prodigy users. Gregori, while admitting to not having seen the

well-known online services, has been a little glib about the current online userbase, categorizing the 1.5 million (or more) of those already online as "nerds"—this by way of promoting what he sees as the simplicity and social nature of SF Net. He may be missing out on being able to position the pay-for-use terminals more widely, such as selected Financial District lunch spots or company cafeterias.

SF Net is novel and worth a look while sipping on a capuccino, but beyond the slant on coffee house tables, and an easy-to-use BBS interface, there's not much new here.

SF Net can be accessed from the following cafes (see most current list by calling SF Net online):

Brain Wash 1122 Folsom St. San Francisco 861-3663

South Beach Billiards 270 Brannan St. San Francisco 495-5939

Cafe La Boheme 3318 24th St. San Francisco 285-4122

Horseshoe Cafe 566 Haight St. San Francisco 626-8852

Ground Zero 783 Haight St. San Francisco 861-1985

Club Coffee 920 Valencia St. San Francisco 821-7112

20 Tank Brewery 316 11th St. San Francisco 255-9455

Cafe Nuvo 556 San Anselmo San Anselmo 485-4310

Royal Grounds 1605 Polk St. San Francisco 749-1731

SF Net

P.O. Box 460693 San Francisco, CA 94146

(415)695-9824 (voice)

(415)824-8747 (data)

InfoServ

If you're a Usenet user, or would like to become one but your eyes glaze over at the thought of the UNIX interface or the minute-by-minute charges at some public access sites, there's a new service for you. For a modest fee (which varies according to the average amount of text transferred) InfoServ Connections of Santa Clara will make your email and newsgroups ready for distribution to your home machine, and will distribute your outgoing email and articles.

Usenet is the name given to the worldwide collection of machines that communicate with each other over standard phone lines using UUCP software (UNIX to UNIX CoPy, which is literally how Usenet is distributed). It serves approximately thirty-five thousand sites and an estimated five million users.

Usenet machines exchange electronic mail, transfer data (such as archives of text or public domain binary files), and engage in public discussions in netnews articles, the world's largest user-written news system. Clarinet, a commercial subset of netnews that makes use of Usenet protocols and offers wire-service produced articles on world news, stocks/finance, sports, recreation, and a selection of nationally syndicated columnists, is also available.

Usenet sites are typically machines at large corporations, schools and universities, and at government facilities. The quality of available and ongoing data exchanges reflects the diverse nature of the host institutions, and has something to offer to most professionals, from astronomers and aviation buffs to zoologists. Even those unfamiliar with Usenet will probably recall media stories about a "computer network" used by Chinese students in the United States during the democratic uprising at Tiananmen Square, when Usenet was heavily used to disseminate information nationwide.

There are also public Usenet/UUCP sites available to people who enjoy the diversity of a worldwide network, and the exchange of email. Most public access sites, however, require users to deal with at least some UNIX obscurity, and because Usenet provides quite a lot to read, the cost of using services which charge by the hour (or minute) can add up quickly.

"Other places offer public-access UNIX," says Rich Gircys, InfoServ's president. "We do not. We don't think people really care about the shell or 'vi'—they want just the results, such as email and news; the fact that you are dealing with a UNIX machine is transparent."

InfoServ holds compressed newsgroups, archives, and email for the user to

Continued on page 242



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Pacific Exchange Multiline. (209)962-4045. 1.2GB, IBM files, USA Today News, online games, chat, and more. [Exp. #92.]

408

The aBySS BBS. (408)423-9582. 1200-14,400. IBM files, online games, message base. Sysop: oRCuS. [Exp. #92.]

A32 Macintosh User Group BBS. (408)263-0299. 24 hrs., 2400. Mac, second sight, members only. [Exp. #94.]

Amateur Action BBS. (408)263-3393. 8-N-1, 1200/2400/9600. 100% adult amateur GIF files, 7 lines, US Robotic Dual BBS. [Exp. #92.]

Amiga (The Dungeon) BBS.

(408)384-6370. 24 hrs., 1200/2400. Games, files, info on Amiga viruses, some IBM files. Sysop: Garnett Sanders. [Exp. #94.]

Atlantis BBS. (408)475-2729. 8-N-1, 1200/2400. Catering to the bi-sexual community of Santa Cruz county. Sysop: King Neptune. [Exp. #92.]

The Beggar's Tomb. (408)293-TOMB. Adult GIFs, animation, msg bases. DOS utilities & shareware. Sysop: The Grim Reaper. [Exp. #92.]

Big Dogs BBS. (408)249-5037. Misc. files and games. Free. Sysop: Bruce Maxwell. [Exp. #93.]

Blue Smoke BBS. (408)265-4660. 24 hrs., 300/1200/2400. Adult SIGs + GIFs, online games, WWW/NET. Sysop: Masque. [Exp. #93.]

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Sysop: Zardoz. [Exp. #92.]

Cruz'in BBS. (408)464-8924. 300/1200. Commodore 64/128. Online games, file transfers, message base, and user group. Sysop: Michael Baldwin. [Exp. #92.]

Cruzio. (408)423-9995. 8-N-1, 1200/2400/9600/19,200. Santa Cruz, email, USENET newsgroups, calendar, agency & gov't directory listings. Sysop: Chris Neklason & Peggy Dolgenos. [Exp. #92.]

The Cypress Express BBS. (408)423-3812. 8-N-1, 1200/2400. Various message areas and assorted topics of interest for everyone. FidoNet 1:143/512. CoSysops: Jen Campbell and Lincoln Quale. [Exp. #93.]

The Dark Side. (408)245-SPAM. 24 hrs. Free access to Usenet and UUCP mail. Since 1985. Internet: darkside.com. [Exp. #93.]

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Infoserve Connections. (408)243-2102. 8-N-1, 24 hrs., 2400. UUCP/Usenet/email for DOS, Mac, and 386/UNIX. Sysop: B. Oesterreich. [Exp. #94.]

The I/O Temple. (408)427-

3453. 8-N-1, 1200/2400/4800/9600. Msg bases, online games, files, netmail for all. FidoNet 1:216/513. Sysop: Armand. [Exp. #93.]

Lynn-Western Newswires. (408)778-5994 & 778-9656. 8-N-1, 24 hrs., 1200/2400. FidoNet 1:143/304. Professional information on technology, management, and worldwide investment news. Stock Market data online. [Exp. #92.]

Moonlit Knight. (408)244-3459. 300-14,400. New user help, music, games, & fun. TechNet HUB, free! Sysop: Allen Woolley. [Exp. #93.]

Morpheus. (408)439-9945. 300/1200/2400. Atari technical, files, messages, high weirdness. Sysop: Ray D. Ation. [Exp. #92.]

Mountain Retreat. (408)335-4595. 1200-14,400. 660MB, FidoNet member, specialty Turbo Pascal. Sysop: John Jamieson. [Exp. #94.]

OmniBBS. (408)438-4882. 24 hrs., 300/1200/2400. Variety of topics, file transfers, online doors. Santa Cruz. Sysop: Silvia Software. [Exp. #93.]

Pacific Exchange Multiline BBS. (408)946-8561. 2.5GB, IBM files, USA Today News, stock report, classified ads, restaurant dBASE, and more. [Exp. #93.]

PDS-SIG BBS. (408)270-4085. 24 hrs., 9600. 6 nodes, email to 8 nets, 600+ conferences, files, IBM/Apple/Amiga, 8GB. Sysop: Bob Allen. [Exp. #92.]

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You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: **US Mail** should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. Faxes are welcome at (510)934-2417 or (213)467-5486.

Email can be sent to: **microx@well.sf.ca.us**. Or MCI: MICROTIMES.

The East Bay has a new area code. Our fax and phone number have a 510 area code. If the number for your BBS has changed to 510 please notify us—by letter, fax, or email—so our listings will include this information.

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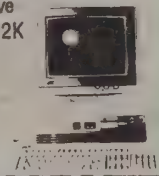
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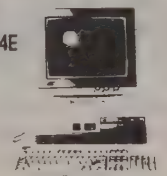
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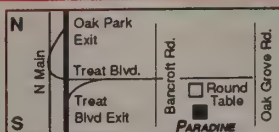
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ASSOCIATIONS

Association For Women In Computing. Meetings: 1st Wed., 5:30 pm, San Francisco. Call: (415)979-8450. [Exp. #93.]

Association Of Database Developers (ADD). Meetings: 2nd Thurs., 7:00 pm, Fort Mason Center, San Francisco. Organization for professional xBASE language systems developers. Membership. Call: Lisa, (510)339-6777. Info: JoAnn, (415)863-6706. [Exp. #96.]

Bay Area Clipper Developers Association. Meetings: 4th Mon., 7:00 pm, Fort Mason, Bldg. C. Call: Barbara Paltiel, (415)345-0152. [Exp. #92.]

Computer Professionals For Social Responsibility. Meetings: 2nd Wed., 7:30 pm, UC Berkeley, Evans Hall, room 608-7. Call: Judy Stern, (510)643-7499. [Exp. #92.]

Data Processing Management Association. Call: (415)978-0868. [Exp. #93.]

IEEE Computer Society, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)905-4400. [Exp. #97.]

Independent Computer Consultants Association, Silicon Valley Chapter. Meetings: 4th Thurs., 6:00 pm. Meetings are open to all. Call: ICCA, (408)492-8888. [Exp. #96.]

Independent Computer Consultants Association. Meetings: 2nd Wed., 6:00 pm.

Meetings are open to non-members and members. Call: ICCA, (415)441-2948. [Exp. #95.]

International Network Of Women In Technology (WIT). Meetings: 2nd Sun., Mountain View. Call: (415)857-0314 or (818)990-1987. [Exp. #96.]

International Network Of Women In Technology. Dedicated to significantly increasing the leadership of Women in Technology in industry and government. Call: Dr. Carolyn Turybfill, (415)336-1007. Email: Carolyn Turybfill@Eng.Sun.COM. [Exp. #97.]

Networkers' Toastmasters. Meetings: Every Tues., noon-1:00 pm, 2560 N. First St., San Jose. Call: Mona Kellem, (408)534-1255. [Exp. #92.]

North Bay Systems Professionals. Meetings: 3rd Wed., 7:00 pm, Holiday Inn, Terra Linda, 1010 Northgate Dr., San Rafael. NBSP provides a forum and network for system professionals. Call: Harry Chapman, (415)291-0174. [Exp. #97.]

SBEA (South Bay Entrepreneurs Association). Meetings: Twice weekly. Financial success and personal growth through teamwork. Call: (408)727-5950. BBS: (408)267-8325. [Exp. #96.]

Society For Technical Com-

munication, Berkeley Chapter. Meetings: 2nd Wed., 6:00 pm, Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Call: Rich Julius, (415)837-0397. [Exp. #96.]

Society For Technical Communication, East Bay Chapter. Meetings: 1st Thurs. Call: Corinne Stefanick, (510)769-8931. [Exp. #92.]

Society For Technical Communication, San Francisco Chapter. Meetings: 3rd Wed. Call: (415)985-7121. [Exp. #97.]

Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219. [Exp. #97.]

The Association For Worldwide Software Support Management. Meetings: 2nd Tues., Milpitas Sheraton. Call: Mikael Blaisdell, (415)865-1323. [Exp. #95.]

The Black Data Processing Associates, Silicon Valley Chapter. Meetings: 4th Thurs., 6:30 pm, Amdahl Corp., Sunnyvale. Call: Doug Jones, (408)737-5999. [Exp. #94.]

United Sysops Association. Meetings: 2nd Wed., 7:00 pm, Coco's, 1035 S. Mary Ave., Sunnyvale. Organization of bulletin board sysops and users. Call: Bill Strouse, (408)739-8753. [Exp. #96.]

Women's Computer Society. Meetings: Last Tues. Call: Tanya Halepota, (415)949-3936. [Exp. #92.]

Thad Floryan, (408)985-7100; U S E N E T, thad@cup.portal.com. [Exp. #97.]

ATARI

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon., 7:30 pm, Agnews Aud., 2nd fl., San Jose. Call: Joe Fischer, (408)988-3065. [Exp. #93.]

San Leandro Computer Club. Meetings: 1st Tues., 8:00 pm, San Leandro Public Library, 300 Estudillo Ave. 8/16/32-bit, SIGs. Call: Bob Wolley, (510)865-1672. [Exp. #93.]

Santa Clara Atari User Group. Meetings: 2nd Wed., 7:00 pm, San Jose Computers Showroom, 1278 Alma Court, San Jose, near First and Alma. Call: Ron Reade, President, (408)225-7162. BBS: (408)848-6032, 300/1200/2400. [Exp. #94.]

ST Programming Team. A club for those Atari users who can write programs for ST/STE. Call: Michael, (408)270-4596. [Exp. #95.]

COMMODORE

CAVE—Commodore Amiga Video Enthusiasts. Meetings: Every other Sat., 8:00 pm, 304 Springs St., Old Suisun. Call: Ron, (707)421-2283. [Exp. #95.]

The Commie Party. Meetings: 175 Henry St., SF, CA 94114. Call: The Carrier Cafe BBS, (415)863-2981. [Exp. #93.]

Commodore Hayward User Group. Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)793-2514. [Exp. #93.]

Cupertino Chapter Of 64/More Commodore User Group. Meetings: 3rd Sun., 6:00 pm, Cupertino Library. Call: (408)262-9334. [Exp. #93.]

CWEST Commodore 64/128. Meetings: 3rd Wed., 7:00 pm, Fort Mason. For info: 1564 Waller #B, San Francisco, 94117. Call: (415)626-9946. BBS, (415)552-9320. [Exp. #96.]

North Valley Chapter Of 64/More Commodore User Group. Meetings: 2nd Sat, 10:00 am, Milpitas Library. Call: (408)262-9334. [Exp. #93.]

CP/M

San Francisco Computer Society. Meetings: 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallagher, (415)929-0252. [Exp. #93.]

DBASE

ADD dBASE Software SIG. Meetings: 3rd Tues., 7:30 pm, Fort Mason Center, San Francisco. Led by Miriam Liskin. Call: JoAnn, (415)863-6706. [Exp. #96.]

ADD Fox Software SIG. Meetings: 1st Thurs., 7:00 pm, Fort Mason Center, San Francisco. Call: JoAnn, (415)863-6706. [Exp. #96.]

East Bay Database User Group. Meetings: 3rd Sun., 1:30 pm, 2415 Grant St., Berkeley. Call: David Chilcott, (510)653-1303. [Exp. #93.]

DESKTOP PUBLISHING

Bay Area Desktop Publishing User Group. Meetings: 1st Tues., 7:00 pm, 2493 Telegraph Ave., Berkeley. Computer-based tutorials on PageMaker 4.0. Speaker: Dr. C.J. Wallia. Call: (510)548-7712. [Exp. #92.]

FORTH

Forth Interest Group Of North Bay. Meetings: 2nd Sat., 1-5 pm, 2055 Center St., Berkeley. Tutorial at noon. Call: Leonard Morgenstern, (415)376-5241. [Exp. #92.]

Sacramento FORTH Interest Group. Meetings: 4th Wed., 7:00 pm, SMUD, 1708 59th St., rm. A. Call: Bob Nash, (916)487-2044. [Exp. #92.]

FREEDOM, PRIVACY, AND TECHNOLOGY

BMUG SIG On Freedom, Privacy, And Technology. Meetings: Last Sun., 2:00 pm, BMUG office, 2055 Center St., Berkeley. Call: Judi Clark, (510)549-2684. [Exp. #94.]

IBM AND COMPATIBLES

Alameda Computer User Group. Meetings: 2nd Wed., 7:30 pm, Social Hall, Temple Israel, Island Dr. and Mecartney Rd. Providing an informal forum for both Macintosh and PC users to explore questions about hardware and software. Call: Dan Meyers, (510)521-3323. [Exp. #97.]

Computer Beginner & User Group. For all IBM, Amiga, Atari beginners or experienced users. Software/hardware assistance & info. Call: Michael, (408)274-7330. [Exp. #93.]

Diablo Valley User Group. Meetings: 1st Thurs., Cardon-dole High School, Treat Blvd. and Winton Ave. in Concord. Call: (510)943-1637. [Exp. #96.]

EastBay FOG. Meetings: 2nd Wed. All microcomputers, MS-DOS, CP/M. Call: (415)272-9099. [Exp. #94.]

Gaming Strategy Group. Fast, detailed hints & strategies on all IBM games. Call: Michael, (408)270-4596. [Exp. #93.]

Golden Gate Computer Society (GGCS). Meetings: 4th Mon., 7:30 pm, San Rafael Community Center. Call: Steve Greenberg, (415)485-0136. [Exp. #95.]

Napa Valley PC User Group. Meetings: 2nd Wed., 7:30 pm, 10 Chapel Hill Dr., Napa. Call: Lee Schwab. [Exp. #93.]

PC Basics: Silicon Valley Computer Society SIG. Meetings: 3rd Mon., 7:30 pm, 847 W. Maude Ave., Sunnyvale. Talks presented by Rich Wingerter of Zip Consulting & Design. Call: (415)326-2435. [Exp. #96.]

PC Programming Team. A club for those IBM users who

can write programs for 286, 386, PS/2 PC. Call: (408)270-4596. [Exp. #95.]

Peninsula Computer Club. Meetings: 2nd Thurs., 7:30 pm, Social Room, 222 Laurel St., San Carlos. DOS and CP/M libraries. Call: Larry Welling, (415)593-9981. BBS (415)571-9259. [Exp. #97.]

Pro Players. Club for all games and utilities users. Write: PO Box 84144, Hung Hom Bay Post Office, Hong Kong. [Exp. #93.]

San Francisco Business Computers. Meetings: 4th Thurs., 5:30 pm. For those who use computers in business. Visitors \$5. Call: (415)788-5338. [Exp. #94.]

San Francisco Computer Society. Meetings: 1st Mon., 7:00 pm, Laguna Honda School, 1350 7th Ave., San Francisco. Call: Ralph Gallagher, (415)929-0252. [Exp. #93.]

KNOWLEDGE-MAN

Bay Area KnowledgeMan (and Guru) User Group. Meetings: 1st Tues., 6:30 pm., JNZ, Inc., 826 Las Trampas Rd., Lafayette. A forum for discussion and info concerning mdbs products, esp. KnowledgeMan and Guru. Call: (510)947-4878. [Exp. #93.]

MACINTOSH

A32 Macintosh User Group. Meetings: 2nd Sat., 10:00 am, GTE Cafeteria, 100 Ferguson Dr., Mountain View. Call: (408)263-0398 days. [Exp. #97.]

BMUG West. Meetings: Last Mon., 6:30 pm, San Francisco Exploratorium. Call: (510)549-BMUG. [Exp. #95.]

BMUG—Berkeley Macintosh User Group. Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #95.]

International Macintosh Users Group (IMUG). Meetings: 3rd Thurs., 7:00 pm, 10500 N. De Anza Blvd., Cupertino. A forum for people using Macintosh computers in different languages. Call: Sachiko Berry, (408)862-7724 (weekdays). [Exp. #96.]

SPC Apple User Group. Meetings: 2nd Wed., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Jim Weil, (415)796-7169. [Exp. #95.]

Women's Macintosh User Group. Meetings: 2nd Tues., 7:00 pm, ComputerWare, Palo Alto. Call: Buffy Joseph, (415)792-2840 or Tayna Halepota, (415)949-3936. [Exp. #93.]

MULTIMEDIA

BMUG Multimedia SIG. Meetings: 2nd Mon., 6:00 pm, Call: (510)549-BMUG. [Exp. #95.]

International Interactive Communications Society—

USER GROUPS

ACCOUNTING SOFTWARE

Account-Mate Bay Area User Group. Meetings: 3rd Thurs., 7:00 pm, S. Branch Berkeley Library, 1901 Russell. Call: Bohen, (510)465-7815. [Exp. #93.]

Computer Associates User Group. Meetings: 1st month of quarter on 3rd Wednesdays. Holiday Inn, 1500 Van Ness. Come share ideas and information with other local users of Computer Associates Accounting Software! Call: Beth E. Markus, (415)864-6770. [Exp. #93.]

AMIGA

3rd Dimension—Image/Lightwave User Group. Meetings: 1st & 3rd & Mon., Computer Showcase, 2739 Geary Blvd, SF. Call: Ollie, (415)863-8792. [Exp. #94.]

A500 Programming Team. A club for those Amiga users who can write programs for A500. Call: Michael, (408)270-4596. [Exp. #95.]

AAA—Amiga Addicts Anonymous. Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave.

Classes, BBS, pub. dom. disks, info line. Call: (510)935-0829. [Exp. #96.]

ACCESS—Amiga & Commodore Computer Enthusiasts Society. Meetings: 2nd Thurs., 7:00 pm, Livermore Airport Terminal. Call: Paul, (510)829-6053. [Exp. #95.]

Amiga Nation. Meetings: 1st Tues., 7:30 pm, 324 Springs St., Suisun. Call: (707)421-2283. [Exp. #96.]

AUM—Amiga Users of Marin. Meetings: 3rd Wed., 7:30 pm, rm. 190, Science Center, College of Marin. Call: Bob, (415)924-5384. AUMBBS: (415)485-5895. [Exp. #92.]

AWEST Amiga Users. Meetings: 1st Wed., 7:00 pm, Computer Showcase, 2739 Geary, SF. Call: (415)584-8406. [Exp. #96.]

FAUG—First Amiga User Group. Meetings: 1st Tues., 7:00 pm, Hyatt Palo Alto, 4290 El Camino Real, Palo Alto. Call: Mike Fisher, (415)855-9426. BBS (415)595-2679. [Exp. #97.]

APL

APL Bay Area User Group. Meetings: 2nd Mon., 7:00 pm. Call: Tibor Horvath, (415)283-5611. [Exp. #92.]

APRICOT

Apricot User Group, East Bay Chapter. For Apricot and other IBM-compatible PCs, hardware/software assistance & info. New members welcome. Call: Ron, (510)828-9643. [Exp. #95.]

AT&T

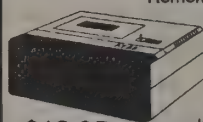
AT&T Computer User Group, North Bay. Meetings: 1st Wed., informal discussion at 6:00 pm, program begins at 7:00 pm, San Francisco AT&T Bldg., 50 Fremont St. MS-DOS and UNIX. Call: Jim Lansing, (415)885-6631 or Joe Mahoney, (415)584-6510; BBS (415)829-6027. [Exp. #97.]

AT&T Computer User Group, South Bay. Meetings: 2nd Wed., informal discussion at 6:00 pm, program begins at 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. MS-DOS and UNIX Call: Joe Lipsig, (408)733-6522; BBS (408)946-7734. [Exp. #97.]

AT&T UNIX Computer User Group, South Bay. Meetings: 4th Wed., new user education at 6:30 pm, program begins at 7:00 pm, Sunnyvale AT&T Bldg., 1090 E. Duane Ave. Call:

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Static Charge Alarm

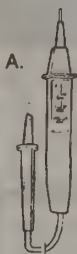
These units are to be used at work stations where static charges are a concern (i.e. CMOS circuit assembly). They produce a tone whenever one of three selectable levels of static charge is present in their monitoring area, allowing you to take preventive action. Only 4" tall and comes with its own 9VDC 300mA adaptor, or will run off internal 9V battery (not included). Prevent those shocking developments!

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B. Deluxe Electrical Tester uses two AAA batteries (not included) to test for continuity. Useful for unpowered circuits, fuses and diodes.
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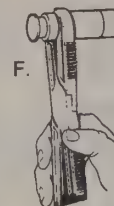
C. Hi-Lo Voltage Tester for automotive use...tests for presence of 6-12 VDC and 20KV for ignition. Light indicates presence of voltage.
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D. Macro-Hook by E-Z-Hook is a large (5.5" long) test probe with insulation-piercing tip, ready to put on your custom or favorite test lead. Red only.
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E. Household tester lights when connected across 90 to 500 Volts, AC or DC. Handy pocket size. Check that circuit before undoing any screws!
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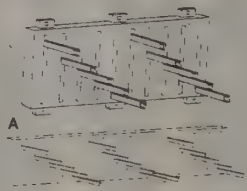


Toss your DOS! Get DR DOS by Digital Research!

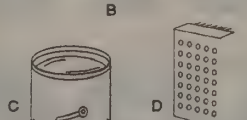
Get everything that DOS should give you but does not! We have a limited supply of DR DOS version 5.0 and DR DOS version 6.0. Version 5.0 has the MemoryMAX memory management system that makes more than 620K of conventional memory available for applications on 386 and 486 systems. It moves the operating system, buffers, drivers, TSR's and network software outside the 640K memory area. Supports hard disk partitions greater than 32 MB. It has a graphical user interface that easily executes common DOS commands such as Copy, Delete, etc. The full-screen interface features two windows for viewing directories in icon-form, a graphical tree or text form. Pull-down menus offer help, viewing options, full-screen text editor, a clock and calculator as well as fast command execution. Easy to use with or without a mouse. Minimum 256K RAM recommended, 1MB recommended for MemoryMAX features on 286, 386 or 486 systems. 5.25" disks (only) and manual, HSC #12888 \$14.95. Version 6.0 has all the above plus DiskMAX file compression to automatically get more on your hard disk, TaskMAX to load up to 20 programs at the same time and quickly switch from one to another, File Security features, "Undelete" and "Unformat" commands to recover accidentally lost data, simple installation and reconfiguration, FileLINK utility for transferring files via serial port from one PC (or laptop) to another, command-line history and editor, and more! Available in 3.5" or 5.25" disk format (please specify), with manuals. Requires minimum 512K RAM, 1MB or more recommended. HSC #12892 \$22.95. Hurry, supplies limited!

Electronic Project Potpourri!

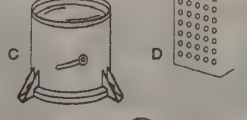
Still some bargains left on our "Specials" shelf! These are just a few of the unique items at HSC, and some are in limited supply, so don't delay!



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B. Sixteen channel Slide-pot Panel, no LED's. Measures 6" x 1.5", 10K Pots. Pinout included. HSC#12152 \$1.95 or 10/\$15.00



C. Projection TV Lens, 3.75" concavo-convex front lens, 3.75" convexo-convex center lens, 2.75" oddy-shaped rear lens. Approx .25" focus travel. Overall size 4.5" dia. x 4" long. HSC#12375 \$12.50



D. 5 x 7 LED Array, .875" x 1.5" made by IEE (Part #IEE1057R) HSC#12811 \$1.95 or 10/\$15.00



E. Horn Speaker, 5" diameter, 8 ohm, 10 watts. Adjustable tilt base. HSC#12163 \$4.95



F. Panasonic AN6291 dbx Stereo Noise Reduction System IC (same as NTE1744, compare at \$6.92) Pinout included. HSC#12851 \$1.49 or 10/\$12.50



G. Bud CU-284 Plastic Chassis Box with Lid Measures 7.5" x 4.5" x 2.25" New in carton. Compare at \$9.30! HSC#12870 \$4.95

H. 110VAC in, 12 VAC 8A or 24VAC 4A transformer (Dual Secondary) Triad F108U HSC#12631 \$9.95

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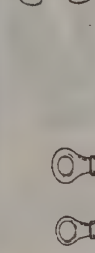
A. Wire Stripper easily cuts and strips wire from 10 to 24 gauge. Spring-loaded handles for quick use. At this price, buy several...one for the car, boat, etc.
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B. Heavy Duty Cable Cutter will slice through battery cable, Romex, other cable up to .5" dia. Coated 8" handles give extra leverage. Stop damaging your diagonal cutters on the big stuff!
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C. Universal Cutter/Crimper/Stripper tool does it all! Cuts wire at tips, strips 10 to 22 ga. wire in handles, cuts #4 to #6 screws, crimps insulated and non-insulated lugs and saves you money!
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D. Solderless Terminal Kit has handy 18-compartment storage box with 80 pieces of ring, spade, fast-on tab and butt-splice connectors (see below) for 10 to 22 ga. wire.
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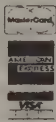
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USER GROUPS

IICS. Meetings: 2nd Wed., 7:30 pm, Call: IICS Hotline, (415)328-7318. [Exp. #93.]

Multimedia SIG. Meetings: 1st Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Palo Alto, Rm. H-1. SIG of Software Entrepreneurs' Forum. Call: Patrick Milligan, (408)257-1547. [Exp. #95.]

NETWORKING

NetSIG. Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)747-4356. [Exp. #97.]

NEURAL NETWORKS

Neural Networks SIG. SIG for Neural Networks and its applications. Call: Kumar, (408)946-5835. [Exp. #94.]

NEXT

BANG—Bay Area NeXT Group. Meetings: 3rd Wed., 7:00 pm, Terman Aud., Stanford. Presentations and lectures. [Exp. #93.]

PARADOX

Bay Area Paradox User Group—BAPALS. Meetings: 4th Tues., 4:00 pm, SF State University Downtown Cam-

pus. Forum for users and developers of all levels. Call: Patricia Hickey, (415)883-1020. [Exp. #96.]

R:BASE

Peninsula R:Base User Group. Call: Don Whitecar, (415)592-5033. [Exp. #95.]

R:Base Users Group Of Oakland. Meetings: 2nd Thurs., even months, 9:00 am, 519 17th St., Downtown Oakland. Newsletter, tips & techniques, database design issues, and more. Call: (510)451-5316. [Exp. #97.]

SMALLTALK

Northbay Smalltalk/V User Group. Call: (415)362-4283. [Exp. #97.]

SQL

SQL_Forum/Bay Area SQL Database Server User Group. Meetings: Once a month in downtown SF. Oracle, SQL Server, SQLBase, and more. Call: Robert Gentry, DBBS, Inc. (415)583-3000. [Exp. #92.]

TELECOMMUNICATIONS

BMUG Telecom SIG. Meetings: Last Wed., 8:00 pm. How to use your modem, terminal programs, and the BMUG BBS.

Call: (510)549-BMUG. [Exp. #95.]

TEXAS

INSTRUMENTS

Santa Clara Valley TIPC Group. Meetings: 4th Thurs., 7:00 pm, Magnolia Inn, 176 S. Bernardo, Sunnyvale. Newsletter, library. Call: Thor, (415)386-5237. [Exp. #93.]

TI-99/4A. Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #95.]

THEOS

Theos User Group. Call: (510)785-7355. [Exp. #96.]

UNIX/XENIX

UNIX SIG. Meetings: 2nd Tues., Oracle Corp. Fitness Center, Redwood Shores. Sponsored by Software Entrepreneurs Forum. Call: Priscilla Rowe, (415)776-0513. [Exp. #92.]

WINDOWS

WinSIG. Meetings: 3rd Thurs., 7:00 pm, Cubberley Community Center, Rm. H-1, 4000 Middlefield Rd., Palo Alto. Windows SIG of the Software Entrepreneurs' Forum. Call: Fran Finnegan, (415)929-7386, or Barbara Cass, (415)854-7219. [Exp. #97.]

InfoServ *Continued from page 234*

retrieve at his or her own convenience. According to Gircys, "To use our service you need UUCP software on your machine. We provide two fine choices for either DOS or Macintosh users, and there's also software available for 386 UNIX users. Therefore, all data downloads from InfoServ can be compressed and cost efficient, and done off-line whenever your system is idle."

"Our whole concept is to bring certain aspects of the UNIX community into the reach of more people, people the UNIX community traditionally ignores. No one else has the wealth of introductory text and documentation that we offer, nor integrated and specialized support for UUCP on small machines. Our specialty is to provide UUCP/Usenet service to people with MS-DOS, Apple/Macintosh machines, 386/486 UNIX machines, and other small machines. We will spend the time to educate our subscribers about Usenet and related topics."

InfoServ's typical customer, Gircys continues, "is one who wants to be able to browse and select new groups for download as often as desired. We are the only service with a news group browser and a system that lets you do this. Perhaps the customer wants a domain-style address [UUCP] without the hassle. Our domain support does this, and the customer doesn't have to worry about uumap registration [for email routing]. Or the customer is a DOS site—we have free software to turn their machine into a UUCP node."

If a customer wants a voluminous resource, like comp.sources.groups, it's available at a flat rate without connect time charges.

The UUCP software will download email and netnews articles. Typically, a user's machine calls InfoServ during the night; if phone lines are busy, the UUCP software automatically tries again later. By morning the user's own computer has downloaded a full complement of email and netnews. Gircys finds that most InfoServ users like the convenience. "People like to start an automatic connect, then come back the next morning and they are ready to go—everything is local and ready—no phone hassle or busy lines."

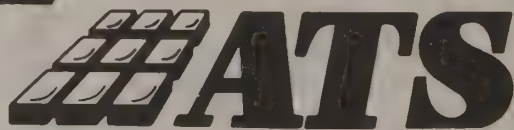
Infoserv provides an online demo, which lets prospective users sample netnews and take a look at what's available. Call or email for information. ■

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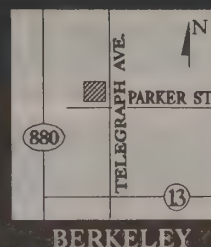
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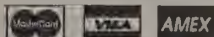
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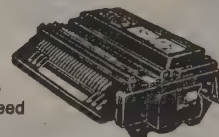
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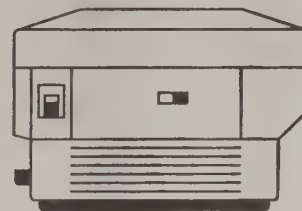
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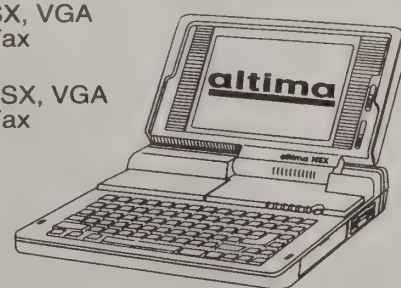
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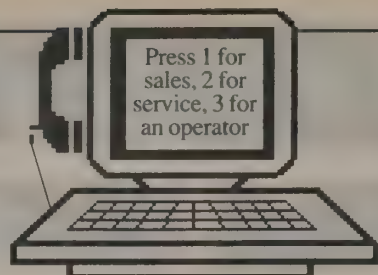
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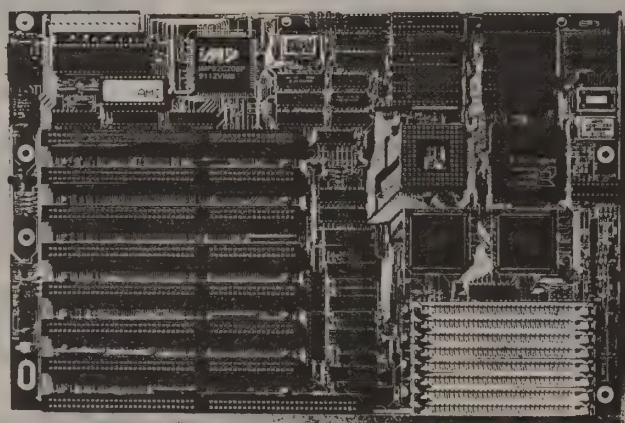
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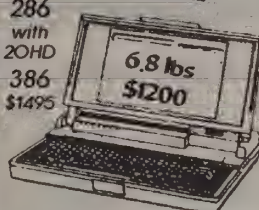
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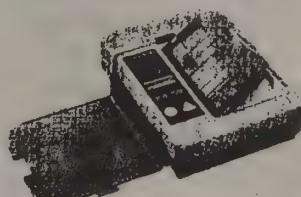
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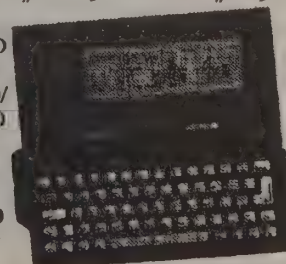
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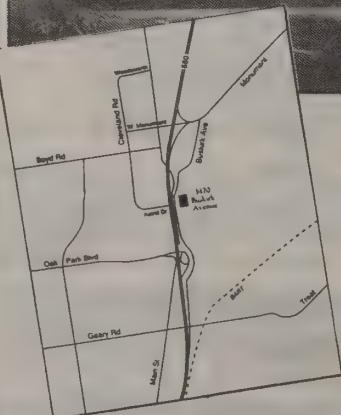
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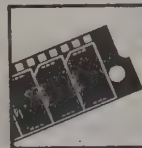
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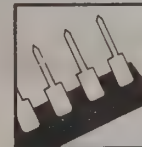
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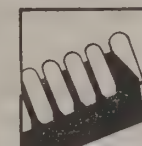
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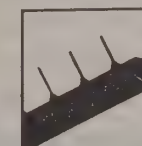
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March 23-24 Intro To SQL Server Course. Alameda. SymPro. Call: (510)865-0600.

March 23-27 DB/EXPO '92 Conference & Expo. San Francisco. Norm De Nardi Enterprises. Call: (415)941-8440.

March 24 Word For Windows Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 24-27 AutoLISP Level 1 Course. San Francisco. SFSU Extended Education. Call: (415)338-1205.

March 24-27 Novell Service & Support Course. Alameda. SymPro. Call: (510)865-0600.

March 25 Advanced Paradox Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 25 Intermediate WordPerfect Class. Walnut Creek. Computer Education Center. Call: (510)937-2566.

March 25 Intro To Windows Class. Emeryville. Northwest Computer Systems. Call: (510)653-0808.

March 25-27 SQL-Systems Admin Course. Alameda. SymPro. Call: (510)865-0600.

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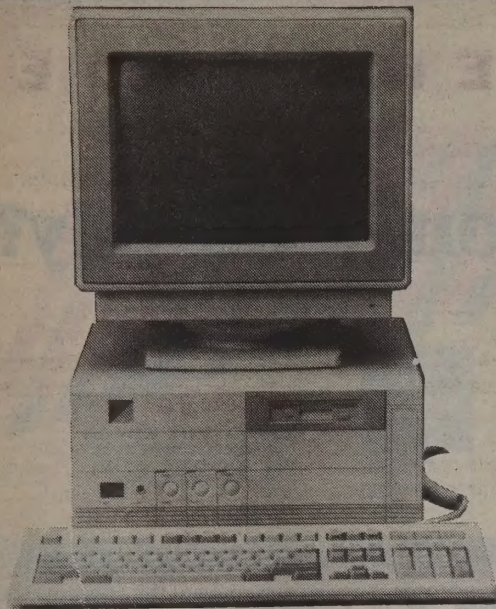
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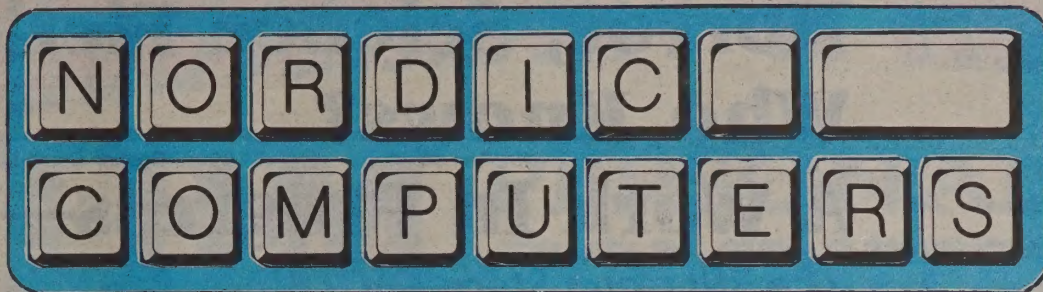
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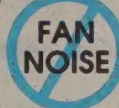
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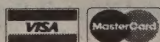
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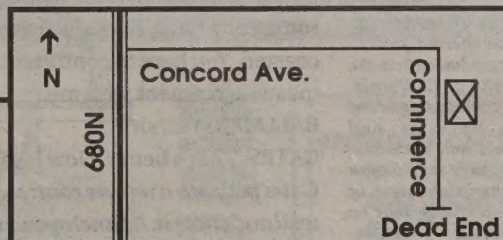
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DVORAK

Scene: offices of Microsoft Corporation, Redmond, Washington. Bill Gates is sitting behind his desk, feet up on the desk, arms behind his head looking at the glowing monitor. Steve Ballmer swings open the door and barges in.

BALLMER: Billy, wake up. What are you watching, man?

GATES: Mandelbrots. Do you know that if the iteration of each Mandelbrot calculation was a penny and our gross profit margin is factored in, there is no reason that...

BALLMER: Hey, we've already gone over that. There's no time for this. All hell has broken loose. The media are pounding on the door wondering why Hallman was fired.

GATES: Fired? I thought he quit. What was it that he did?

BALLMER: He was the President. Don't you remember? You then made me and a couple of other of your pals into kind of a junta to run things.

GATES: Ah, yes. We couldn't get Sculley. Is he still in the office?

BALLMER: Sculley? Heck, yes.

Ballmer pulls the door wide open to reveal the waiting room where

GATES: My hobby. As many have suspected, I've been trying to clone myself for over a decade. You've seen some of the attempts walking around the company. Lookalikes. None have been perfect so I just turned them over to the marketing departments and gave them jobs. I'll probably have to destroy them sometime soon. With these clones I won't have to worry about people making stupid mistakes or disagreeing with me.

BALLMER: Why clone me?

GATES: They only look like clones of you. They have the same superior brain that my clones have. The same superior brain I have! Hahahahahaha. Nothing can stop me now. And you, Mr. Ballmer, are now expendable.

BALLMER: Not on your life!

Quick as lightning Ballmer pulls out a handgun and blasts Gates with six shots to the chest. Gates falls back into the chair. Suddenly one of the Gates clones pulls out a pistol and shoots the gun out of Ballmer's hand

NEW GATES: I thought you'd do that. That was a clone you shot. I'm the real Bill Gates.

Each copy of Gates repeats the phrase "I'm the real Bill Gates." A new panel opens up revealing a dozen more Bill Gates clones. They all say they're the real Gates.

NEW GATES: Ballmer clone number two, take this man to the cave of horrors and throw him in there with Sculley!

BALLMER: No, no! Anything but that! Please no!

Ballmer is carried out by a Ballmer clone and the New Gates motions the other Ballmer clones out of the room. They stand at the door like guards. The new Gates then speaks to the assembled Gates clones.

NEW GATES: Now, gentlemen. We can simultaneously work together. We can be at more than one place at the same time. We can pool our enormous brain power. You each must remember who you are, though. You are clones of me. If you begin to think that you are really me and not a clone, squeeze your right earlobe and you'll feel a little button that lights up the ear as a way of identifying you to other members of the group.

Each clone pinches his earlobe and his ear lights up a light red color.

NEW GATES: Now when I do it... [demonstrates]

The clones simultaneously gasp as the ear of the new Gates lights up like the rest of them. The new Gates quickly turns to look into the large mirror behind the desk to see that his ear is brightly lit. He looks down onto the chair where the original Gates sat. He reaches down and pinches his ear. It lights too!

NEW GATES: Oh my god!

Just then Ballmer walks in with his three clones. He is laughing wildly.

BALLMER: Well, well. I see my inventions worked. And you've all been fooling yourselves. I have been running things from the beginning. Bill hasn't been here for years. The one clone that I shot was defective anyway. Too mechanical. He's been posing as Gates since 1982. Now I think I got it right. Gentlemen, the world is ours. Pass-word: Takeover!

ALL CLONES: Hail Ballmer! Hail Ballmer!

BALLMER: Excellent. Hahahahaha! ■

DVORAK'S LAST COLUMN

Sculley is bouncing around on a pogo stick holding the stick with his right hand and waving a red cowboy hat in the air with his left hand.

GATES: I see. Hmmm, I wonder what we should do with him.

BALLMER: Let's put him in the lock-up and torture him like we do with all the programmers who have failed us in our effort to rule the software world.

GATES: An interesting prospect, but I hear that his office in Cupertino isn't much different from our torture chamber. Put him in the cave of horrors. You know, where we put salesmen who don't make quota.

BALLMER: Are you sure you want to be that extreme?

GATES: Are you questioning my authority? [pushes button on desk]

Suddenly a large probe rises behind Gates and Ballmer turns ashen white. Before he can say anything, an enormous electrical discharge blasts Ballmer right in the face. Ballmer drops to his knees with a moan.

GATES: Sorry, Steve, you know the rules. You can't talk back to me, ever. My conditioned response electro-probe is what makes this company the biggest company in the world. We have to be on the same team. My thoughts have to be your thoughts. I've brought you into this company and made you a rich man. It's time you gave something back. Ever since you invented the big box theory you've coasted. You have to contribute more. This doesn't mean back talk. It means agreement with me.

BALLMER: Yes, sir!

GATES: That's better. Now I want you to see something.

Gates picks up a remote control device from his desk and aims it at the wall and clicks it. A panel opens and out walk three exact copies of Steve Ballmer. He clicks on another panel and out walk three exact copies of Bill Gates.

BALLMER: What the....!!



© 1992 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine and MacUser, and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.

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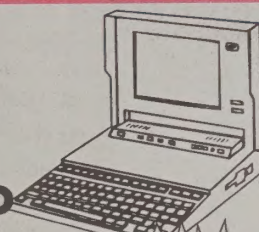
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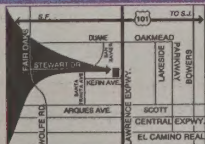
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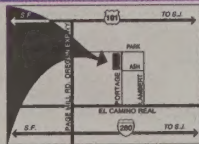
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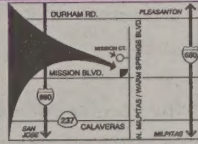
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New QEMM-386 v6.

**"It's nothing less than
a dream come true"**
—Steve Gibson, InfoWorld 8/26/91

Suddenly PC users have a lot of memory managers to choose from. Seems that everyone has figured out what users have been telling us for years: they need every last 'K' of available memory between 640K and 1 megabyte—especially if they're running on a network. Or using TSRs.

Our new QEMM-386 version 6 is the best way to get the most out of memory. It 'pools' all your memory so that it's available in whatever form your programs need—expanded or extended. You don't even need to know the difference. QEMM does it all for you. Instantly. Whereas DOS 5, for example, requires you to figure out what you need, then manually allocate memory and re-boot for every change.

As for the all-important 'conventional' memory area, our new version 6 increases the amount of memory freed-up. Our exclusive 'optimize' feature automatically seeks out TSRs and device drivers and moves them into high memory—the area between 640K and 1 megabyte. All you need do is type 'OPTIMIZE'.

QEMM-386 v6 finds more high memory than any other memory manager. *Byte Magazine's* tests showed it produced net memory gains of 21K to 132K over DOS 5.0 alone, for instance.

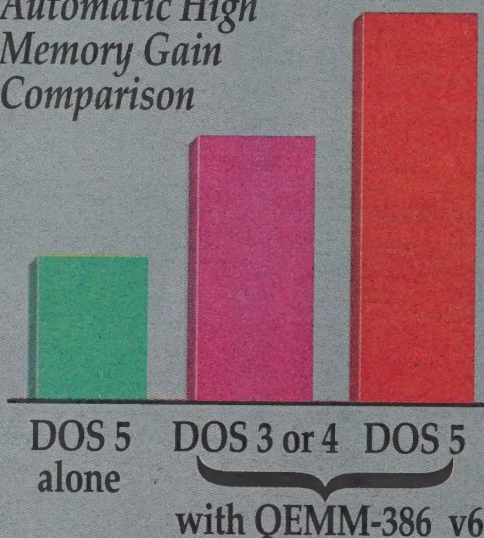
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QEMM is the top-selling PC utility.

There's no better way to manage your memory.



What you can expect Automatic High Memory Gain Comparison



Stealth takes you to network and TSR heaven.

Our breakthrough 'Stealth' technology makes available areas normally taken up by ROM. Areas that QEMM-386 can use to load memory-hogging TSRs and drivers. Big programs can get the memory they need to run fast and efficiently. And

you get to have your TSRs.

Not every PC can benefit from Stealth. But every PC can benefit from 'Squeeze'—our new feature to manage those TSRs that need more memory at start up and less when they're resident.

Memory allocation is temporarily increased, then squeezed down after it's needed.

QEMM can use idle video memory to produce a further 96K gain on EGA and VGA systems when running character-based programs.

A priceless \$60 bonus.

QEMM comes with Quarterdeck Manifest, the award-winning analysis program that makes it easy to see what's 'under the hood' of your PC.



Manifest shows you how your PC works.

Manifest does for memory what PC Tools Deluxe does for disks.

Benefits for Windows, too.

Whether you're running DOS 3, 4, 5, or Windows, QEMM can improve your 386/486's performance.

That means you may not need a faster CPU. You may not need more RAM. QEMM makes your favorite programs work better by giving them more memory.

QEMM helps you get the most out of the software you own today.



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